

# INFORMATION

## Handbook for Emergency Preparedness

Be Prepared —  
Be Informed

A Publication by



Hawaiian Electric  
Maui Electric  
Hawai'i Electric Light

2015

[hawaiianelectric.com](http://hawaiianelectric.com)

Published by Hawaiian Electric Company  
P.O. Box 2750 • Honolulu, Hawai'i 96840  
Phone: (808) 543-7511  
Website: [www.hawaiianelectric.com](http://www.hawaiianelectric.com)  
Cover photo courtesy of  
National Oceanic Atmospheric Administration



# ALOHA!

Electricity is vital to our quality of life, making possible the modern conveniences we take for granted.

At Hawaiian Electric, Maui Electric, and Hawai'i Electric Light Company, we work hard to provide you reliable electric service. But power outages could happen. Problems can range from short, momentary interruptions that merely cause lights to flicker to major outages lasting for days after a devastating hurricane. In today's electronic world, power interruptions like these can mean disruption. That's why we've prepared this booklet for you. Although the focus is on what to do during an emergency, many of the safety and equipment protection tips can and should be followed at all times.

Please take the time to read this handy guide and keep it nearby. We hope it will help you understand why power outages occur and more importantly, how to minimize the inconveniences and dangers they can cause. Working together, we can be prepared.

Mahalo,

Alan M. Oshima  
President and Chief Executive Officer

Hawaiian Electric Company  
Maui Electric Company  
Hawai'i Electric Light Company

*We gratefully acknowledge the assistance of the City and County of Honolulu Department of Emergency Management and the Hawai'i Emergency Management Agency (formerly State Civil Defense) on this project.*



# TABLE OF CONTENTS



<b>IMPORTANT REFERENCE INFORMATION</b>	5
Emergency Alert System	6
Early warning system	6
Storm tracks	8
Tracking a storm	9
How do hurricanes form?	9
Storm tracking map	10
All storms are dangerous	12
What actions should I take?	12
Emergency preparedness checklist	13
Floods	14
What should I do to prepare for a flood?	16
Tsunamis	21
<b>ELECTRICAL SAFETY</b>	22
Circuit breaker panels, fuse boxes and the main breaker switch	23
Ground fault circuit interrupters (GFCIs)	24
General indoor electrical safety tips	27
General outdoor electrical safety tips	28
Downed power lines	29
Low voltage and high voltage electric shock	30
Electrical fires	31
Precautions to take when excavating	32
Sounds and noises from power lines and transformers	33
Electrical safety and water damage	33
<b>POWER OUTAGES</b>	34
Why do power outages occur?	34
What is being done to minimize power outages?	36
What can I do to help minimize the occurrence of power outages?	36

<b>PREPARING FOR A POWER OUTAGE</b>	37
Individual preparation	37
Evacuation procedures	38
Home survival kit checklist	39
Evacuation kit checklist	40
First aid kit checklist	41
Planning ahead for health needs	42
Water storage	43
Ice and dry ice	44
Generators	46
Protecting your appliances and sensitive equipment from power disturbances	47
<b>DEALING WITH A POWER OUTAGE</b>	50
Reporting a power outage	50
Restoring the power	50
When will the power be back on?	50
Who can I contact about power outages?	51
How does the electric utility company decide where and when power gets turned on first?	51
How does the electric utility company decide where and when to dispatch its crews?	52
Rolling blackouts	52
Fire safety	53
Ice and dry ice	53
Telephones	53
Water use and safety	54
Elevator safety	54
Protection of pets and animals	55

<b>RECOVERING FROM AN EXTENDED POWER OUTAGE</b>	57
Minimizing the use of electric power after an outage	57
Momentary power interruptions	58
Water use and safety after an extended power outage	58
Cleaning up after a storm	60
Filing a claim with your electric utility company	61
<b>FOOD SAFETY AND PREPAREDNESS</b>	62
Emergency food storage	62
Supplies for preparing meals when the power is out	62
Recipes for emergency food sample menu	63
Five-day sample menu	64
Seven day food supply	65
Food safety during and after a power outage	66
Refrigerator foods - when to save and when to throw out	68
Freezer foods - when to save and when to throw out	70
<b>REFERENCE GUIDE</b>	71
Important telephone numbers and addresses	71
Other sources of useful information	78
Statewide Public Emergency Shelters	79
<b>GLOSSARY</b>	84
<b>INDEX</b>	87



# IMPORTANT REFERENCE INFORMATION

The following chapter contains important information that will be referred to throughout this booklet.

The Hawaiian Electric Companies work in close partnership with their respective county Civil Defense agencies/Emergency Management departments and the Hawai'i Emergency Management Agency office during emergencies and non-emergency-related power outages. This partnership is essential to ensure that correct, timely, and helpful information on the status of electric utility operations under emergency conditions is conveyed to the public through the appropriate Emergency Management departments and to federal, state, and city and county governmental offices.

During times of alert, emergency mobilization, and activation of county emergency operating centers, and during the recovery phase of a disaster, the electric utility companies provide coordinators to both the county and state Emergency Management agencies. For the most accurate information, turn on your TV or radio and listen to the official reports on various counties' Emergency Alert System (see page 6).

For more information on how to prepare for and deal with disasters and emergencies, visit, write, or call your county's **Department of Emergency Management** office.

Refer to the **Reference Guide** on pages 71-83 for a list of important telephone numbers and addresses, other sources of useful information, and Statewide Emergency Evacuation Shelters.

# EMERGENCY ALERT SYSTEM

The **Emergency Alert System (EAS)** is your official source of emergency information and instructions. This information originates from the county Emergency Operating Centers as well as state and federal partners.

If the Statewide Outdoor Warning Sirens sound, turn “ON” your TV or radio. All radio stations have voluntarily agreed to participate in the EAS. In the event of a power outage, some stations are equipped with back-up generator power and will continue to stay on the air. Stay tuned to these stations for further information and instructions. Take the necessary protective actions as directed and keep tuned to your radio for further updates.

During an emergency, a battery-, hand-crank-, or solar-powered radio will be your primary source of information. If using a battery-powered radio, be sure you have enough batteries to operate your radio for at least 24 hours. Emergency Management information will also be available on television and cable TV systems.

During a major power outage, the electric utility company will provide power restoration updates to the EAS.

# EARLY WARNING SYSTEM

The **National Weather Service (NWS)** has an early warning system linked to satellites that record the formation of storms, and then track them. The developing storm area is clearly visible on the satellite pictures, and its progress is monitored locally by the NWS.

All NWS advisories, watches, and warnings, including tropical cyclone positions, can be heard on **National Oceanic and Atmospheric Administration (NOAA) Weather Radio All Hazards (NWR)**. NWR is broadcast directly from the forecast office in Honolulu. Updates are broadcast 24 hours a day. If Civil Defense asks you to evacuate, instructions will be given in the NWR broadcasts. The radio program broadcasts on frequencies 162.550 and 162.400 in the Hawaiian Islands. Program your weather radio with the **Specific Alert Message Encoding (SAME) codes** listed on page 7 for the counties of which you would like to receive alerts.

**NOTE:** *NWR receivers can be purchased at your local electronic store, on-line, as well as various other radio dealer locations.*



**COUNTY SAME CODE**

Hawai'i.....	015001
Honolulu.....	015003
Kaua'i.....	015007
Maui (Lana'i and Moloka'i)....	015009

Here are some of the definitions of terms and signals that you may be hearing during hurricane season:

**TROPICAL DEPRESSION**

A low-pressure system or cyclone with sustained winds of less than 39 miles per hour (mph).

**TROPICAL STORM**

A cyclone where winds range from 39 to 73 mph.

**HURRICANE**

A tropical cyclone with winds of 74 mph or more. Torrential rains, destructive waves, and high waters known as storm surge, may create flood conditions in coastal and low-lying areas. More lives are claimed by storm surge and flooding in most parts of the world than by the winds of a hurricane.

When a Tropical Depression forms, the NWS issues a series of advisories, which include watches and warnings, based on the strength and position of an approaching storm, as follows:

**HURRICANE WATCH**

Issued by the NWS if hurricane conditions could possibly reach the islands within 48 hours.

**HURRICANE WARNING**

Issued by the NWS when dangerous hurricane conditions are expected to affect the islands within 36 hours or less.

Remember, in our island environment, both winds and storm-generated waves present significant hazards. Coastal flooding from the ocean often occurs in low-lying areas, and residents should refer to the phonebook yellow pages for information on Emergency Management evacuation zones (see Disaster Preparedness Guide). Torrential rains of tropical storms can also turn small streams into raging torrents, cause dangerous rock and mud slides, and flash flooding.

# STORM TRACKS

The Hawaiian Islands sit in the midst of storm tracks. Historically, as many as 13 storms form during Hawai'i's hurricane season, which normally runs from June through November. Storms are also known to appear outside this seasonal window. Ranging from tropical depressions to full blown hurricanes, these systems usually form off the coast of Central America and move in a westerly direction between 10 degrees to 20 degrees north latitude.

Most of the storms dissipate before getting close to the Hawaiian Islands, but if one maintains its intensity as it moves past the Big Island at 19 degrees north, it will tend to curve poleward to the northwest. Later in the season, some storms also form south of Hawai'i near the equator.

While there have been numerous near misses, two hurricanes, and one tropical storm did make landfall: Hurricane Dot in 1959 and Hurricane Iniki in 1992. Tropical Storm Iselle made landfall in 2014. Hurricane Iwa brushed the islands of Kaua'i and O'ahu in 1982, causing over \$234 million in property damage.



## TRACKING A STORM

The map on pages 10 and 11 can be used to track the progress of a storm moving toward Hawai'i. Use latitude and longitude coordinates to pinpoint the storm's location when hurricane advisories are released by the NWS.

**Latitudes** are lines running across the map from side to side.

**Longitudes** are represented by the lines running up and down the map. For example, Lāna'i, in the center of the island chain, is located at 20.9° N latitude and 157° W longitude.

Remember, hurricanes are very unpredictable. They can change direction and intensity very quickly. Therefore, it is important to listen to the radio for NWS advisories and Department of Emergency Management information.

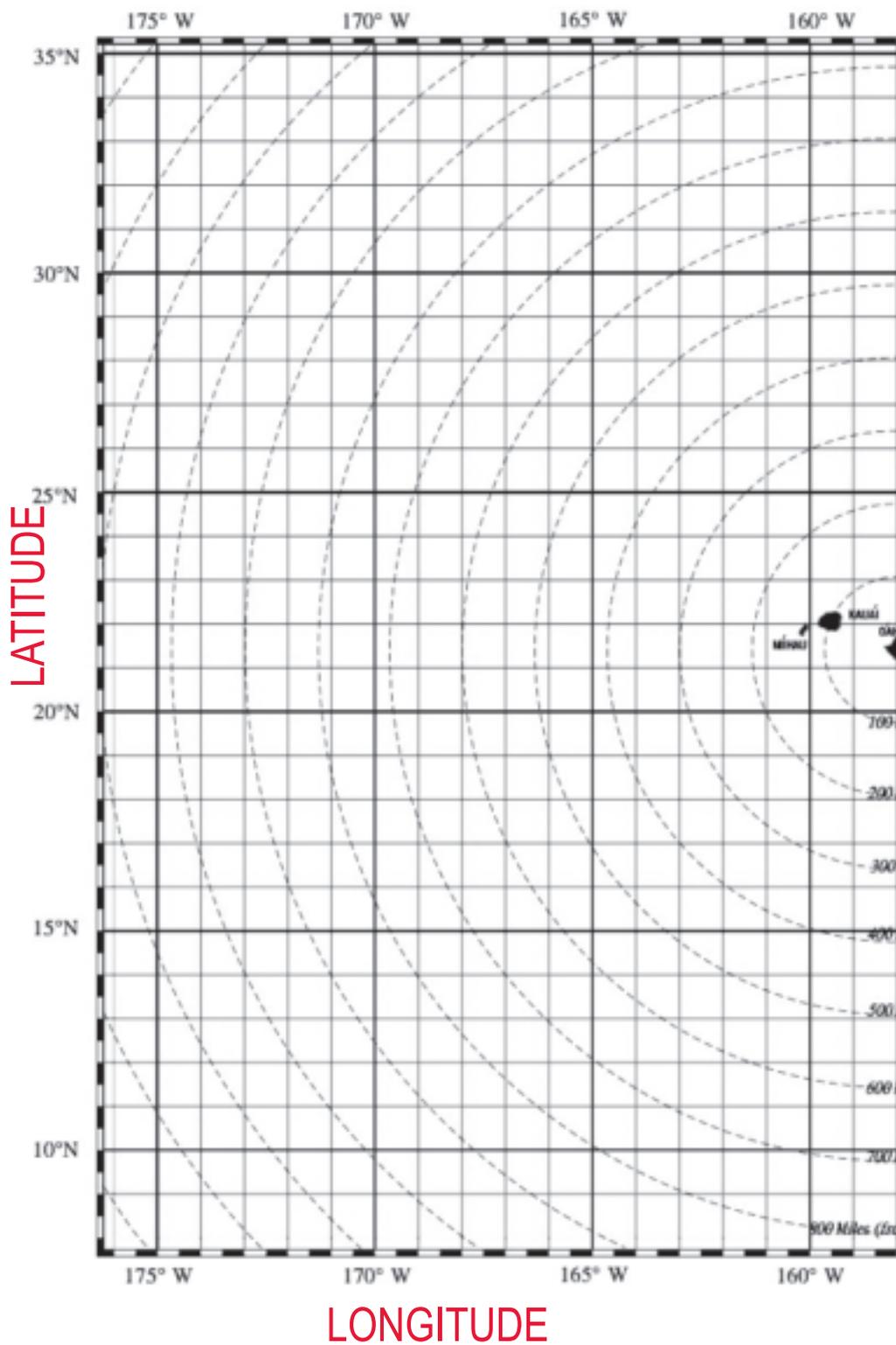
When the NWS declares a **Hurricane Watch**, there is a threat of hurricane conditions within 48 hours. This may be your last chance to ensure that all emergency preparations are completed and all emergency supplies are acquired.

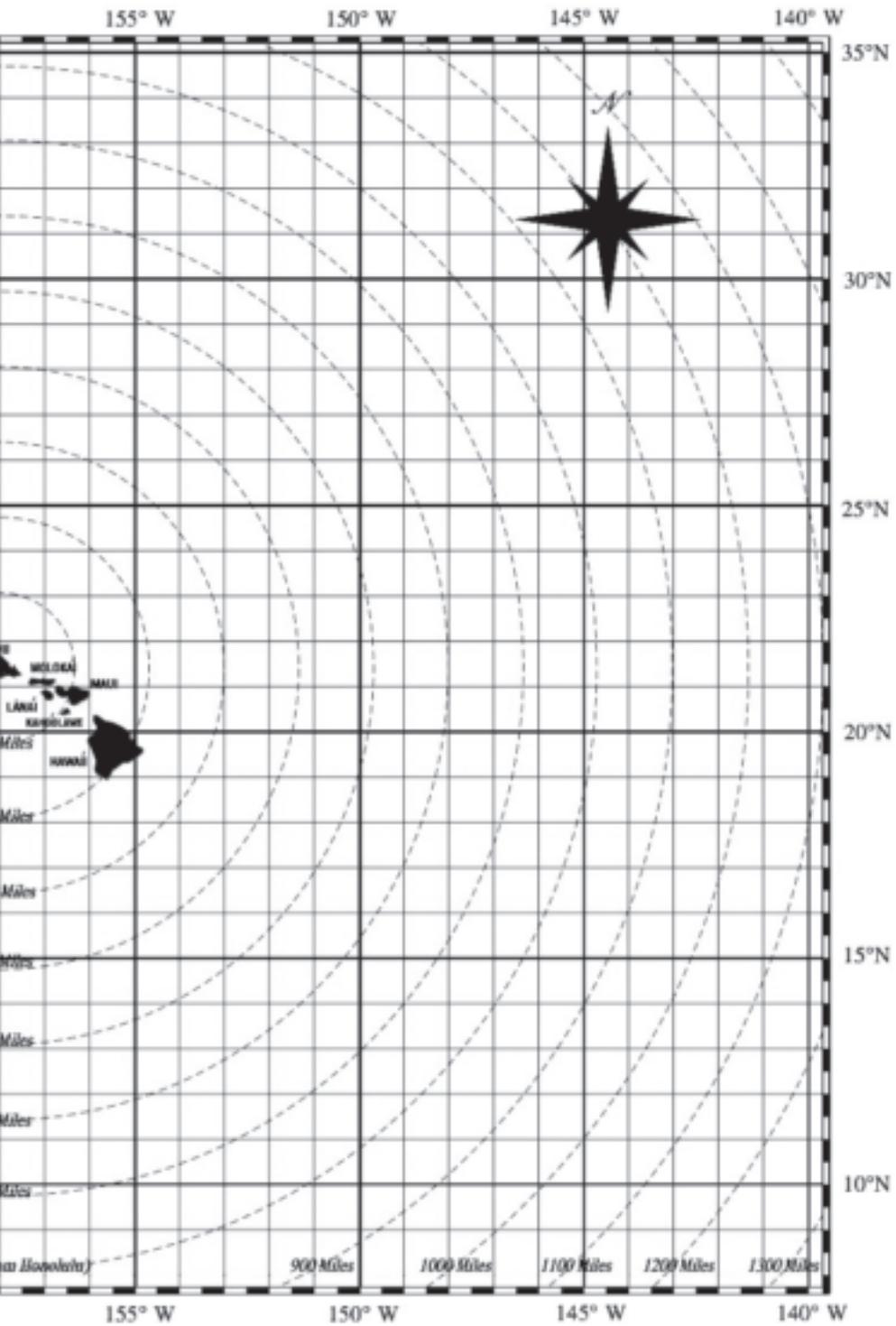
When a **Hurricane Warning** is issued, dangerous storm surge, flooding and winds are expected in 36 hours or less. Take immediate actions to save life and property. Anticipate sounding of Emergency Management sirens and issuance of evacuation advisories/orders.

Keep in mind, a Hurricane Warning may not always be preceded by a Hurricane Watch.

### **Q: How do hurricanes form?**

**A:** The source of a hurricane's energy is derived from warm ocean water along the equator and the corresponding higher level of humidity. In simple terms, a low-pressure area is created when water-laden clouds release heavy rains as the warm air rises. Surface air spirals inward and upward in a counterclockwise direction to fill the partial vacuum, reaching tens of thousands of feet above sea level to encircle the hurricane's eye. While the eye is almost calm and is often exposed to blue sky, the winds nearest the eye are strongest.





# ALL STORMS ARE DANGEROUS

All storms are dangerous. They come in different shapes and sizes, packing winds as high as 150 mph or more. Damage from these winds can run from light to destructive, depending on both the strength and direction of approach. Storms approaching the islands from the south tend to do more damage than those approaching from other directions. Heavy surf often reaches island shores a day or two ahead of a tropical storm or hurricane, causing damage to beach homes and roadways.

## **Q: What actions should I take?**

**A:** Prior to the approach of hurricane season, or before June, is the time to take action by preparing a home survival kit and making emergency plans for the family. Don't wait until a Hurricane Watch is issued to make your preparations. When a Hurricane Watch is declared, make final preparations and review emergency plans with your family. See pages 39-41 on how to prepare a **home survival kit, evacuation kit, and first aid kit** for your family.

- When the Civil Defense sirens sound, listen to your radio or TV for instructions. When advised, or if threatened by the conditions in your area, evacuate to sturdy buildings or public shelters and leave areas that may flood. See pages 79-83 for a list of **Statewide Public Emergency Shelters**.
- Stay indoors during high winds. Do not go "sightseeing" during or immediately after a storm. You could risk your life as well as the lives of people who may try to help you should you get into trouble. You may also hamper the work of emergency crews.
- Make whatever telephone calls you need to make, but limit those calls to less than a minute if possible. This is to avoid telephone gridlock and to keep lines open for emergency calls. Overloading circuits reduces the efficiency of the entire telephone system.
- Consult with your building contractor or property manager ahead of time on actions you can take to make your house hurricane resistant.
- If you have photovoltaic panels installed on your roof, consult with your licensed solar contractor regarding normal and emergency operation procedures for your solar system.



## EMERGENCY PREPAREDNESS CHECKLIST

The key to successfully weathering a hurricane or tropical storm is being prepared. Here is what you should do:

- Know the warning signals and where shelters are located. See pages 79-83 for a list of Statewide Public Emergency Shelters
- Always have a home survival kit ready. See page 39 for a checklist.
- Tie down or store all loose objects.
- Bring all potted plants into the house.
- Remove and store lanai furniture.
- Throw deck furniture into the pool.
- Unplug electric appliances you may not need or use.
- Cover all windows and door openings with boards, shutters or other shielding materials. Permanent storm shutters offer the best protection for windows. A second option is to board up windows with 5/8" marine plywood, cut to fit and ready to install. Other alternatives include replacing existing glass with impact-resistant glass, and covering existing glass with a protective film.  
**NOTE:** Tape does not prevent windows from breaking.
- Wedge sliding glass doors at the top. Wedge a dowel or a piece of broom handle into the track of sliding glass doors to prevent them from coming loose when the wind blows.
- Properly secure propane tanks. Remember that fuel containers and propane tanks should never be stored indoors or near appliances, gas water heaters, and sources of fire. Make sure storage areas are cool, dry, and well ventilated to allow any gas leaks to safely dissipate.
- Assemble insurance and personal identification documents and place them in waterproof containers.
- Secure elevators on the top floor of your condominium.
- Fill up the gas tank of your car.
- Care for pets. See page 55 for more information.

# FLOODS

In recent years, Hawai'i residents have become all too familiar with the dangers and inconveniences floods can cause. On O'ahu, damages caused by the Halloween Eve flood of 2004 were estimated to be in the millions of dollars.

Floods are one of the most common hazards in the United States. Flood effects can be local, impacting a neighborhood or community, or very large, affecting entire river basins and multiple states. However, all floods are not alike. Some floods develop slowly, sometimes over a period of days. But **flash floods** can develop quickly, sometimes in just a few minutes and without any visible signs of rain. Flash floods often have a dangerous wall of roaring water that carries rocks, mud and other debris and can sweep away most things in its path. Overland flooding occurs outside a defined river or stream, such as when a levee is breached, but still can be destructive. Flooding can also occur when a dam breaks, producing effects similar to flash floods.

Be aware of flood hazards no matter where you live, but especially if you live in a low-lying area, near water or downstream from a dam. Even very small streams, gullies, creeks, culverts, dry streambeds, or low-lying ground that appear harmless in dry weather can flood.

To learn more about flood hazards, check out the NWS campaign, **Turn Around Don't Drown® (TADD)** at the website listed on page 78. TADD is a NOAA NWS campaign to warn people of the hazards of walking or driving a vehicle through floodwaters.



**Q: How can I protect myself, my family, and my home from a flood?**

**A:** Familiarize yourself with these terms:

**FLASH FLOOD OR FLOOD WATCH**

Flash flooding or flooding is possible within the designated watch area. Be prepared to move to higher ground and listen to your NWR, commercial radio, or TV for information (see page 6 for NWR frequencies).

**FLASH FLOOD OR FLOOD WARNING**

Flash flooding or flooding has been reported or is imminent. Take necessary precautions at once. If advised to evacuate, do so immediately. Get to higher ground and get out of areas subject to flooding. This includes dips, low spots, canyons, washes, etc.

**SMALL STREAM FLOOD ADVISORY**

Flooding of small streams, streets, and low-lying areas is occurring. Avoid areas already flooded, especially if the water is flowing fast. Do not attempt to cross flowing streams.

According to the **Federal Emergency Management Agency (FEMA)**, the smartest thing you can do to prepare for floods is purchase flood insurance. Protection against loss due to floods is not covered under a homeowner's policy. You should contact your property/casualty agent or broker about eligibility for flood insurance, which is offered through the **National Flood Insurance Program** (see page 77 for contact information). Generally, there is a 30-day waiting period for this policy to become effective, so don't wait until the last minute to apply.

**Prior to a flood, be sure to take the following actions:**

- Make an itemized list of personal property, including furnishings, clothing and valuables. Photographs and/or video of your home (inside and out) are helpful. This will assist an adjuster in settling claims and will help prove uninsured losses, which are tax deductible.
- Keep your insurance policies and a list of personal property in a safe place, such as a safe deposit box. Know the name and location of the agent(s) who issued these policies.

**Q: What should I do to prepare for a flood?**

**A:** Make the following preparations:

- Know your flood risk and elevation above flood stage. Do your local streams or rivers flood easily? If so, be prepared to move to a place of safety. Know the safest route from your home or place of business to high, safe ground should you have to evacuate in a hurry.
- If you live in an area that is frequently flooded, keep on hand materials such as sandbags, plywood, plastic sheeting and lumber that can be used to protect your property.  
**NOTE:** *Sandbags should not be stacked directly against the outer walls of a dwelling, since when wet, the bags may create added pressure on the structure.*
- Be aware of streams, drainage canals, canyons, and other areas known to flood suddenly. Flash floods can occur in these areas with or without typical warnings such as rain clouds or heavy rain.
- Always have a home survival kit and an evacuation kit ready. See pages 39-41 on how to prepare these kits.
- Avoid building in a floodplain unless you elevate and reinforce your home.
- Grade yards and patios to speed drainage.
- Elevate the air conditioner, water heater and electric panel if susceptible to flooding.
- Install “check valves” in sewer traps to prevent floodwater from backing up into the drains of your home.
- Construct barriers (levees, beams, floodwalls) to stop floodwater from entering the building.
- Seal walls in basements with waterproofing compounds to avoid seepage.
- Keep a portable radio, emergency cooking equipment and flashlights in working order.
- Move essential items, valuable papers and valuable belongings to upper floors or higher elevations.

**Q: What should I do if a flood is likely in my area?**

**A:** If a flood watch has been reported for your area, follow these instructions for precautionary measures:

- Keep a battery-, hand-crank-, or solar-powered radio tuned to a local station, and follow emergency instructions.
- Do not allow children to play along streams or near drainage ditches. Both of these areas can quickly turn deadly during times of heavy rainfall.

- Put cleaning supplies in a box and elevate the box to either a counter top, or table top, or to higher elevations to prevent chemical spills into floodwaters.
- Hikers should use extreme caution anytime heavy rains threaten. Hawai'i streams can go from a trickle to a raging flood within minutes if previous rainfall has been substantial.
- Store drinking water in clean bathtubs, sinks, and in clean containers, in case water service is interrupted. You can sanitize these items by first rinsing with bleach. See page 59 for instructions on how to sanitize water.
- Keep your automobile fueled. If electric power is cut off, gas stations may not be able to operate pumps for several days.
- Check and clear drainages.

**Q: What should I do during a flood?**

**A:** During a flood, follow these instructions:

- Tune in to your TV or radio and follow emergency instructions. Keep a battery-, hand-crank-, or solar-powered radio on hand in the event of a power outage.
- The safety of your family is the most important consideration. Since floodwaters can rise very rapidly, you should be prepared to evacuate before the waters reach your property.
- If you have a flood-related emergency and need assistance, call 911.
- If you are caught in the house by suddenly rising waters, move to the second floor and, if necessary, to the roof. Take warm clothing, a flashlight, and portable radio with you. Then wait for help. Do not try to swim to safety. Rescue teams will be looking for you.

**IF, AND ONLY IF, TIME PERMITS, there are a number of precautionary steps that can be taken:**

- Turn “OFF” all utilities at the main power switch and close the main gas valve. Disconnect electrical appliances. Do not touch electrical equipment if you are wet or standing in water.
- Board up windows or protect them with storm shutters to prevent flying glass.
- Bring outdoor possessions inside the house or tie them down securely. This includes lawn furniture, garbage cans, tools, signs, and other moveable objects that might be swept away or hurled about.
- Secure your home.

**Q: What are the important safety tips to follow if I must evacuate my home?**

**A:** The rule for being safe in a flood situation is simple:  
**HEAD FOR HIGHER GROUND AND STAY AWAY FROM FLOODWATERS!**

If it is safe to evacuate by car, consider the following:

- Stock the car with an evacuation kit. See page 40 for instructions on how to prepare one.
- Do not camp or park your vehicle along streams and ditches, particularly during dangerous conditions. Both of these areas can quickly turn deadly during times of heavy rainfall.
- Keep the gas tank at least half full, since gasoline pumps will not be working if the electricity has been cut off.

**Q: What are the important safety tips to follow while driving in flood conditions?**

**A:** If driving during a flood, follow these safety instructions:

- Do not drive where water is over the roads. Parts of the road may already be washed out or the water may be much deeper than it appears. Turn around, don't drown.
- If your car stalls in a flooded area, abandon it as soon as possible. Floodwaters can rise rapidly and sweep a car and its occupants away. Many deaths have resulted from attempts to move stalled vehicles.
- Do not drive into flooded areas:
  - Six inches of water will reach the bottom of most passenger cars, causing loss of control and possible stalling.
  - A foot of water will float many vehicles.
  - Two feet of rushing water can carry away most vehicles, including sport utility vehicles and pick-ups.
- Be especially cautious at night when it is harder to recognize flood dangers.

**Q: What are the important safety tips to follow when walking in flood conditions?**

**A:** If walking during a flood, follow these safety tips:

- Try to avoid flooded areas, and do not attempt to walk across stretches of floodwaters that are more than knee deep.
- Do not walk through moving water. **If the moving water is above your ankles, STOP! Turn around and go the other way.** Six inches of moving water can make you fall. If you have to walk in water, walk where the water is not moving and use a stick to check the firmness of the ground in front of you.

**Q: What are the important safety tips to follow after a flood?****A:** After a flood, follow these safety tips:

- Check for injured persons. Do not attempt to move seriously injured persons unless they are in immediate danger of death or further injury. If you must move an unconscious person, first stabilize the neck and back, then call for help immediately.
- Keep a battery-, hand-crank-, or solar-powered radio with you so you can listen for emergency updates, news reports, and information on whether the community's water supply is safe to drink.
- Stay off the streets and avoid moving water. If you must go out, watch for fallen objects, downed electrical wires, and weakened walls, bridges, roads, and sidewalks.
- Avoid floodwaters. The water may be contaminated by oil, gasoline, or raw sewage. The water may also be electrically charged from underground or downed power lines.
- Be aware of areas where floodwaters have receded. Roads may have weakened and could collapse.
- Stay at least 10 feet away from downed power lines and report them to your electric utility company's **Trouble Line** at the number(s) listed on pages 71-77.
- Stay out of any building if it is surrounded by floodwaters.
- Use extreme caution when entering buildings; there may be hidden damage, particularly in foundations.
- Use the phone only to report life-threatening emergencies.
- Do not visit disaster areas. Your presence might hamper rescue and other emergency operations.

**Q: What are the important safety tips to follow when I return home after a flood?****A:** Returning home can be physically and mentally challenging. Return home during daylight hours, after authorities have indicated it is safe to do so. Follow these safety tips and above all, use caution:

- Refer to "Cleaning up after a storm" on page 60 for safety precautions. Proceed with immediate cleanup measures to prevent any health hazards.
- Use a battery-powered flashlight (not lanterns, torches or matches) to inspect a damaged home. Flammables may be inside.

**NOTE:** *Your flashlight should be turned on outside your home—the battery may produce a spark that could ignite leaking gas.*

- Service damaged septic tanks, cesspools, pits and leaching systems as soon as possible. Damaged sewage systems are serious health hazards.

- Clean and disinfect everything that got wet. Mud left from floodwater can contain sewage and chemicals.
- Call your insurance agent or broker who services your flood insurance policy. The agent will submit a loss form to the National Flood Insurance Program. An adjuster will be assigned to inspect your property as soon as possible. Take pictures of damages and keep good records of repair and cleaning costs.
- Perishable items that pose a health problem should be listed and photographed before discarding. Discard fresh food and previously opened medicines that have come in contact with floodwaters.
- Cover broken windows and holes in the roof or walls to prevent further weather damage. The expense of these temporary repairs is usually covered under your flood insurance policy (subject to the policy deductible).
- Flooded basements should be drained and cleaned as soon as possible. Remember, however, that structural damage can occur by pumping out the water too quickly. After the surrounding floodwaters have subsided, begin draining the basement in stages—about one-third of the water volume each day.
- Refrigerators, sofas and other hard goods should be hosed off and kept for the adjuster’s inspection. A good deodorizer to use when cleaning major kitchen appliances is to add one teaspoon of baking soda to a quart of water. Any partially damaged items should be dried and aired; the adjuster will make recommendations as to their repair or disposal.
- A drinking water advisory to disinfect the water from the tap may be issued in your community. See page 59 for instructions on how to sanitize water.

**Q: How can I receive help in recovering from a flood?**

**A:** If you should need help after a flood, the following resources are available to you:

- Seek necessary medical care at the nearest hospital.
- The American Red Cross may be able to provide you with a voucher to purchase new clothing, groceries, essential medications, bedding, essential furnishings, and other items to meet emergency needs. Listen to the radio to find out where to go for assistance, or call the American Red Cross for your county at the number(s) listed on pages 71-77.
- Listen to your radio for information on assistance that may be provided by the state or federal government or other organizations.

- If you hire cleanup or repair contractors, be sure they are qualified to do the job. Be wary of people who drive through neighborhoods offering help in cleaning up or repairing your home. Check references.

## TSUNAMIS

There is NO tsunami season. Tsunamis are a year-round, 24-hour-a-day threat and hazard to all shoreline areas of Hawai'i. A tsunami warning is issued by the Pacific Tsunami Warning Center when a potential tsunami with significant widespread inundation is imminent or expected. Warnings alert the public that widespread, dangerous coastal flooding, accompanied by powerful currents is possible, and may continue for several hours after the arrival of the initial wave.

### LOCAL URGENT TSUNAMI WARNING

Issued when a local earthquake with the potential to create a tsunami has occurred; and the Pacific Tsunami Warning Center has determined damaging waves are probable. Sirens and other notification systems will sound immediately as wave travel time may be as short as 10-20 minutes. Persons in the tsunami evacuation zone should evacuate immediately.

### DISTANT TSUNAMI WARNING

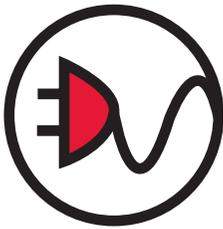
When a Distant Tsunami Warning is issued, evacuation sirens will sound a minimum of 3 hours before wave arrival time. Tsunami Refuge Center locations will be broadcast over TV, radio or NWR. You must bring all of your disaster supplies with you to the center.

#### **Q: What actions should I take during a tsunami warning?**

**A:** During a tsunami warning, follow these instructions:

- Have a battery-, hand-crank-, or solar-powered radio on hand in case electricity service is disrupted.
- Review the tsunami evacuation zone maps presented in the "Disaster Preparedness Guide" in the telephone yellow-pages directory.
- If you live in an evacuation zone, plan evacuation routes with your family and decide where you'll meet ahead of time. The county may decide to open evacuation or refuge centers, if needed.
- If you must evacuate, shut off your electricity and gas at the main circuit breaker or valve. Turn off and unplug electric equipment and appliances to protect them from damage.

- If you are outside evacuation zones when a tsunami warning is issued, stay where you are and keep roadways open for people who must seek higher ground.
- If you are on the shoreline and feel the ground shake, observe an unusual receding of the ocean or hear a loud roaring sound, go inland or to higher elevations immediately. These are natural tsunami warnings!
- Do not tie up telephone lines or cell phones with non-emergency calls. Increased cellular and land-line telephone traffic can severely hamper the ability to request emergency assistance from first responders.
- Do not return to coastal areas until the “all clear” has been announced by emergency officials over TV and radio.



## ELECTRICAL SAFETY

This chapter covers electrical safety measures to follow not only before, during and after a disaster or a power outage, but anytime you use electricity.

Electricity, like many of the conveniences of the modern world, is something we’ve come to take for granted. Cooking, cooling, lighting and refrigeration are just a few of the things electricity makes possible. What we should never take for granted, however, is the power of electricity. Don’t be fooled – electricity can be dangerous.

To protect your family and yourself, learn the basic rules of electrical safety and what to do in emergency situations, such as when power lines go down or electrical fires occur.

Remember, electricity always tries to reach the ground. It travels over “**conductors**” or anything that allows electricity to flow. It is important that electricity is handled safely around people, water, trees, damp ground and metal, which are all excellent conductors of electricity. An “**insulator**” is the opposite of a conductor – any material that will not allow electricity to move through it easily. Rubber is an insulator used in personal protection equipment worn by professional electricians when handling electricity.

## CIRCUIT BREAKER PANELS, FUSEBOXES, AND THE MAIN BREAKER SWITCH

**Q: What are circuit breakers and fuse boxes and how do I use them?**

**A:** Your household controls electric service through a panel or box called a **circuit breaker panel** or **fuse box**. Circuit breaker panels or fuse boxes contain breakers or fuses of different capacities. Each circuit's capacity is labeled by "**amps**," which is a unit that measures the amount of an electric current.

**Fuses** or **circuit breakers** are devices which limit the amount of electric **current** a circuit will carry. They protect the wires and equipment from overheating, which could create fire hazards. They are designed to automatically open or "break" a circuit should the amount of electric current exceed the rated design of the circuit. Fuses contain a soft metal filament that melts to break the circuit when too much current flows through them.

It is important and good practice, to label fuses or circuit breakers with the location of the circuit (e.g. bathroom, kitchen or bedroom). Labeling your devices will aid you in case of a power outage or when you need to turn the power "OFF" before doing repair or maintenance work.

To prevent circuit breakers from sticking or malfunctioning, it is good practice to exercise your breakers once a year by turning them "OFF" and "ON" three times.

**Q: What is a main circuit breaker or main switch and how do I use it?**

**A:** A **main circuit breaker** or **main switch** is used to cut off power to your entire home. It is usually located by the **electric meter** on your home, although some circuit breaker panels also contain the main breaker switch.

In an emergency—such as during an appliance fire or while rescuing a person from household electric shock—cut off the power to your house at the main breaker or switch. However, if it is faster for you to access your circuit breaker panel or your fuse box than the main breaker or switch, turn all the breakers "OFF" or unscrew all the fuses to cut off power to the house.

## GROUND FAULT CIRCUIT INTERRUPTERS (GFCIs)

### **Q: What is a GFCI?**

**A:** A **GFCI** is an inexpensive electrical device that is designed to protect people from severe or fatal electric shocks. Because a GFCI detects **ground faults**, it can also prevent some electrical fires and reduce the severity of others by interrupting the flow of electric current. It is recommended to have GFCIs installed in areas where the risk of electric shock is higher, such as near receptacles or water sources.

### **Q: How does a GFCI work?**

**A:** The GFCI constantly monitors electricity flowing in a **circuit** to sense any loss of current to the ground, often times referred to as a “ground fault.” If the current flowing through the circuit differs by a small amount from that returning, this could indicate insulation breakdown and the GFCI quickly switches off power to that circuit. The GFCI interrupts power faster than the blink of an eye to prevent coming into contact with a lethal dose of electricity. You may receive a painful shock, but you should not receive a serious shock injury.

### **Q: What types of GFCIs are available?**

**A:** Three common types of GFCIs are available for home use. Look for the **Underwriter’s Laboratories (UL) seal** on GFCIs when purchasing them or when specifying the product to your licensed electrician, to ensure your product meets safety standards. UL is an independent product safety certification organization that certifies products using a **UL mark** to indicate that the product meets a number of safety requirements and guidelines.

**NOTE:** “*UL Approved*” is not a valid term used to refer to a *UL Listed, UL Recognized or UL Classified product*. To learn more about *UL guidelines and valid UL marks*, visit the *UL website listed on page 78*.

## WALL RECEPTACLE GFCI

This type of GFCI is the most widely used. It fits into a standard outlet and protects against ground faults whenever an electrical product is plugged into the outlet. Wall receptacle GFCIs are most often installed in kitchens, bath and laundry rooms and outdoor locations where water and electricity are most likely to be in close proximity. Most receptacle type GFCIs can be installed so that they also protect other electric outlets farther “downstream” in the branch circuit.

## CIRCUIT BREAKER GFCI

In homes equipped with circuit breakers, this type of GFCI may be installed in a panel box to give protection to selected circuits. The circuit breaker GFCI serves a dual purpose – not only will it shut off electricity in the event of a ground fault, but it will also trip when a short circuit or an overload occurs. Protection covers the wiring and each outlet, lighting fixture, heater, etc. served by the branch circuit in the panel box.

## PORTABLE GFCI

Where permanent GFCIs are not practical, portable GFCIs may be used. One type contains the GFCI circuitry in a self-contained enclosure with plug blades in the back and receptacle slots in the front. It can be plugged into a receptacle, and the electrical product is then plugged into the GFCI. Another type of portable GFCI is an extension cord combined with a GFCI. It adds flexibility in using receptacles that are not protected by GFCIs. Portable GFCIs should only be used on a temporary basis and should be tested prior to every use.

### **Q: Where should GFCIs be installed?**

**A:** GFCIs should be used anywhere a receptacle and a water source are present, such as kitchens, bathrooms, garages and carports, utility or laundry rooms, workshops, outdoor locations, pool and whirlpool spa areas, decks and porches.

In homes that are built to comply with the **National Electrical Code (the Code)**, GFCI protection is required for most outdoor receptacles (since 1973), bathroom receptacle circuits (since 1975), garage wall outlets (since 1978), kitchen receptacles (since 1987), and all receptacles in crawl spaces and unfinished basements (since 1990). Consider having GFCIs installed if you own a home that does not have GFCIs currently installed in those critical areas specified in the latest version of the Code.

For broad protection, GFCI circuit breakers may be added in many panels of older homes to replace ordinary circuit breakers. For homes protected by fuses, install wall receptacle or portable GFCIs in areas of greatest exposure, such as the bathroom, kitchen, basement, garage and outdoor circuits. A GFCI should be used whenever operating electrically powered garden equipment (mower, hedge trimmer, edger, etc.) and tools (drills, saws, sanders, etc.).

**Q: How should GFCIs be installed?**

**A:** Circuit breaker and wall receptacle GFCIs should be installed in your home by a **licensed electrician**. The portable GFCI requires no special knowledge or equipment to install. Whichever type of GFCI is installed, it is important to follow the manufacturer's installation instructions to ensure proper functioning, especially when protecting other outlets downstream in the branch circuit.

**Q: How can I be sure that the GFCI is working properly?**

**A:** GFCIs should be tested after installation to make sure they are working properly. Like all products, GFCIs can be damaged over time. GFCIs damaged by lightning or electrical surges may fail to provide adequate protection. Test circuit breaker and wall receptacle GFCIs monthly and after any violent thunderstorm. Test portable GFCIs before each use.

**FOLLOW THESE STEPS ON HOW TO PROPERLY TEST GFCIs IN YOUR HOME:**

1. Push the "RESET" button located on the GFCI receptacle to assure normal GFCI operation.
2. Plug a nightlight with an "ON/OFF" switch or other product (such as a lamp) into the GFCI receptacle and turn the product "ON."
3. Push the "TEST" button located on the GFCI receptacle. The nightlight or other product should turn "OFF."
4. Push the "RESET" button. The light or other product should turn "ON" again. If the light or other product remains "ON" when the "TEST" button is pushed, the GFCI is not working properly or has been incorrectly installed. If your GFCI is not working properly, call a licensed electrician who can assess the situation, rewire the GFCI if necessary, or replace the device.



# GENERAL INDOOR ELECTRICAL SAFETY TIPS

People are good conductors of electricity, particularly when they are standing in water or on a damp floor. Your body can act like a lightning rod and carry the electrical current to the ground.

## FOLLOW THESE SAFETY PRECAUTIONS TO AVOID THE RISK OF INJURY, OR EVEN DEATH:

- Do not touch a faulty appliance, plug or bare wire. They can make you part of the electric circuit and put you at risk of electric shock.
- Frayed wires are dangerous anywhere and should be repaired at once, or better yet, replaced.
- Replace inflexible electric cords with UL certified cords that meet the UL's safety requirements and guidelines. See page 24 to learn about valid UL marks.
- Repair any appliance that sparks, emits smoke or shocks you.
- Never use any electric appliance while in the tub or shower.
- Do not use any appliance or touch an electric cord while you are touching metal pipes and faucets or anything wet.
- Outlets near water sources (bathrooms, kitchen sinks, garages, outdoors) should be GFCI protected.
- Unplug appliances before cleaning them or removing anything from them (such as burnt toast from your toaster).
- Do not yank on the electric cord when unplugging appliances – doing so can damage the wires. Take hold of the plug firmly and pull straight.
- Train children not to put things into electric outlets. Using plastic outlet guards is a good idea.
- Keep work areas clean. Oily rags, newspapers, and sawdust can catch fire from electric sparks.
- Never overload a circuit with high-**wattage** appliances. Overloading a circuit could cause the wire and breaker to heat up and could potentially start an electrical fire. Check the wattage on your appliance labels and be sure the combined wattage of all the appliances you want to plug into the same circuit does not exceed 1440 **watts** for a 15 amp circuit and 1920 watts for a 20 amp circuit. See “Circuit breaker panels, fuse boxes, and the main breaker switch” on page 23 for an explanation of amps.

# GENERAL OUTDOOR ELECTRICAL SAFETY TIPS

- Keep ladders, fruit pickers, antennas, kites, balloons, model air planes and trees away from overhead power lines to prevent them from getting tangled and potentially causing a power disruption or safety hazard.
- Look up and around for power lines before starting any harvesting or tree trimming activity. If a tree is touching overhead power lines, it may be energized and you should not touch it.
- Only professionally trained and certified arborists should trim trees that are touching or in close proximity to power lines.
- If you have a problem with objects coming in contact with the power lines, call your electric utility company's Trouble Line at the number(s) listed on pages 71-77.
- Never use electric power tools or appliances in the rain or while standing in water.
- For outdoor locations, use only lights, cords, and fixtures intended for outdoor use. Plug into outlets with a GFCI or GFI.
- Never climb on utility poles, pad mounted **transformers** or transmission towers.
- Do not let anyone shoot or throw anything at insulators on power lines.
- Do not climb into electric utility **substations**. If you see someone climbing or trespassing into a substation, call 911 or call your electric utility company's Trouble Line at the number(s) listed on pages 71-77.
- Pad-mounted transformers are for underground wiring. The transformers are inside sturdy metal cabinets, which are locked for safety. Never pry them open. If you find an unlocked door on one of these cabinets, call your electric utility company's Trouble Line at the number(s) listed on pages 71-77.
- If you are caught in a lightning storm, stay away from trees and whenever possible, stay dry. Go indoors and keep clear of windows. Unplug the TV and other electronic appliances.
- Never build a swimming pool or other structure under the power line leading to your house.
- Before digging, learn the location of underground power lines as well as the TV cable, gas and water pipes. Call **Hawai'i One Call** at the number(s) listed on pages 71-77 for assistance in locating **underground cables** and pipes.

## DOWNED POWER LINES

**Q: What do I do if I see downed power lines on the ground or touching a guard rail? How do I know if they are energized?**

**A:** Most overhead power lines are not insulated so, when lines from a utility pole fall to the ground or on a guard rail, assume they are energized and dangerous. Energized lines can be deceiving by appearing lifeless and harmless. **Don't touch these lines! Stay a safe distance away — at least 10 feet or more!**

A live wire touching the ground causes electricity to fan out in a pool, decreasing in strength as it travels away from the center. A downed line touching a fence or guard rail can energize it for several thousand yards. This poses a danger to anyone coming into contact with these structures. Running from a fallen line may cause your legs to bridge current from higher to lower **voltage** and you may receive a shock. Instead, keep your legs together and shuffle away with both feet on the ground. Shuffle a safe distance (10 feet or more) away from other utility poles.

If someone is in contact with a fallen line or guard rail, do not try to rescue them because electrical current can travel through them to you and you risk becoming a victim yourself. Warn others to stay away. As in all power line-related emergencies, call for help immediately by dialing 911 or call your electric utility company's Trouble Line at the number(s) listed on pages 71-77.

**Q: What if the downed power line is touching the car while I'm in it?**

**A:** A car touching a downed line will become energized. If a power line falls on your car while you are inside, follow these instructions:

- Remain where you are, if possible, and wait for help.
- If you must get out of the car because of a fire or some other hazard, jump free of the car, hopping with both feet together so that your body clears the vehicle before touching the ground.
- The driver should never step down or simultaneously touch the ground and equipment that is in contact with the power line, as this will increase the risk of electric shock.
- Once you clear the car, shuffle at least 10 feet away, with both feet on the ground as described above.
- As in all power line related emergencies, call for help immediately by dialing 911 or call your electric utility company's Trouble Line at the number(s) listed on pages 71-77.

# LOW VOLTAGE AND HIGH VOLTAGE ELECTRIC SHOCK

**Q: How do I handle an electric shock?**

**A:** There are two classifications of electric shock: **Low voltage** (household) and **High voltage** (outdoor). If electric shock should occur, follow these instructions:

## **LOW VOLTAGE (HOUSEHOLD)**

1. Call for emergency medical help immediately by dialing 911.
2. Determine if the person is still in contact with the circuit or power source. If the person is in contact with the circuit or power source assume the circuit is still energized.
3. De-energize the circuit or power source by turning “OFF” the power at your fuse box or circuit breaker panel.
4. If you cannot turn the power “OFF,” use a dry piece of wood, dry plastic or wooden broom or dry leather clothing to separate the victim from the power source.

**NOTE:** *Never attempt to remove a person from an energized circuit with your bare hands. Electrical current can travel through them to you and you risk becoming a victim yourself.*

5. Once the victim is free, if the victim is not breathing and has no heartbeat, start CPR immediately; the victim is probably in cardiac arrest. **DO NOT ATTEMPT CPR IF YOU DO NOT KNOW THE CORRECT PROCEDURES.**
6. If the victim is conscious, keep them seated and calm.
7. Ensure that the victim is taken to the hospital for testing and observation.

## **HIGH VOLTAGE (OUTDOOR)**

1. If a person is in contact with a power line, assume the line is energized and dangerous.
2. Do not attempt to free the person from the power line. Electrical current can travel through them to you and you risk becoming a victim yourself.
3. Stay clear and warn others to keep away (10 feet or more).
4. Call for emergency medical help immediately by dialing 911.
5. Call your electric utility company’s Trouble Line at the number(s) listed on pages 71-77.

## ELECTRICAL FIRES

### Q: How do I handle electrical fires?

A: Be prepared by doing the following:

- Keep a multi-purpose, type “ABC” (type “C” for electrical fires) fire extinguisher handy.
- Mount the fire extinguisher in plain view, near an escape route and away from potential fire hazards such as heating appliances.
- Read the manufacturer’s instructions to know how to use and care for your extinguisher.

### Q: What should I do if there is a fire?

A: If a fire occurs, first make sure everyone has left or is leaving the house before attempting to fight a fire, then follow these safety tips:

- Do not fight the fire if the fire could block your escape route.
- Make sure someone calls the fire department for help even if the fire seems small and you think you can put it out.
- If the fire is confined to an appliance, electrical cord, outlet, or switch, shut off the power by opening your main breaker, which is usually located near the electric meter; or shut off the circuit breakers at your electric service panel; or unscrew the fuses at the fuse box. Do this **ONLY** if you can do so without endangering yourself.
- **NEVER USE WATER ON AN ELECTRICAL FIRE!** Water can carry the electricity back to you and you could receive a deadly shock.
- Use your multi-purpose fire extinguisher to put out the fire. Even if you manage to put out the fire, have the firefighters check to be sure the fire is not smoldering out of plain sight.



# PRECAUTIONS TO TAKE WHEN EXCAVATING

**Q: How do I prevent an electrical “dig-in” when doing excavation work on my property?**

**A:** Before excavating, determine the approximate location of underground lines in the work area. Observing pad-mounted electrical equipment or **handholes** near the work area are good indicators that underground lines exist.

Before digging, learn the location of underground power lines as well as the TV cable, gas and water pipes. Call **Hawai‘i One Call** at the number(s) listed on pages 71-77 for assistance in locating **underground cables** and pipes.

Verification of underground lines should be performed cautiously, using hand digging methods. It is recommended that “non-metallic” type tools be used.

**Q: What do I do if I damage an underground power line?**

**A:** If an underground power line is damaged during excavation, warn others to keep away and call for help immediately. Call your electric utility company’s Trouble Line at the number(s) listed on pages 71-77.

If an underground power line is damaged when excavating with a backhoe or other mechanical equipment, the operator should remain on the equipment or vehicle until the equipment can be moved and cleared from the power line.

If the equipment cannot be cleared from the power line, and the operator must get off because of a fire or some other hazard, the operator should jump free of the equipment, landing with both feet together so that the operator’s body clears the equipment before touching the ground. The operator should never step down or simultaneously touch the ground and equipment that is in contact with the power line, as this will increase the risk of electric shock. Once they have cleared the equipment, the operator should shuffle at least 10 feet away, with both feet touching the ground.

## SOUNDS AND NOISES FROM POWER LINES AND TRANSFORMERS

**Q: What if I hear sounds and noises coming from power lines and transformers?**

**A:** Most sounds and noises (such as humming or static) are normal, but if you hear unusual sounds (such as an explosion) from the power lines or transformers, please call your electric utility company's Trouble Line at the number(s) listed on pages 71-77.

## ELECTRICAL SAFETY AND WATER DAMAGE

**Q: If my home gets flooded, when are the electric outlets safe to use?**

**A:** After a flood, it is wise to have your electrical system inspected by a licensed electrician. In addition to a visual inspection of your system, the electrician should perform tests to determine deterioration in the system.

Depending on the exposure, the age of the system, and other factors, electrical devices or wiring may need to be replaced. See "Cleaning up after a storm" on page 60, for advice on the safe use of electricity if your home has experienced water damage.





# POWER OUTAGES

This chapter explains what causes power outages, what electric utility companies do to minimize power outages and what you can do to help.

## WHY DO POWER OUTAGES OCCUR?

As your electric utility company, we understand that no one likes a power outage. It can cause inconvenience in your normal daily life. We are continuously striving to improve our system and equipment to minimize power outages, but there will always be uncontrollable situations in which a power outage can occur. The following is a list of some of the reasons your lights may go out. Some are obvious; others may come as a surprise to you. For those terms you don't understand, please refer to the handy glossary on page 84.

### **NATURAL DISASTERS**

- Tropical storms and hurricanes.
- Torrential rains.
- High winds.
- Storm surge (high surf).
- Tsunamis.
- Thunderstorms (lightning).
- Earthquakes.
- Volcanic eruptions.
- Mud slides.
- Land slides.

### **OBJECTS COMING IN CONTACT WITH OVERHEAD POWER LINES AND OTHER ELECTRICAL EQUIPMENT**

- Trees and branches.
- Model airplanes, kites, balloons.
- Heavy equipment such as cranes.
- Humans and animals.
- Damage to overhead transformers.

### UTILITY POLE DAMAGE

- Vehicle accidents.
- Termites, rot, corrosion.

### DAMAGE TO UNDERGROUND CABLES OR EQUIPMENT

- Flooding in the cable **vault**.
- Excavation work that results in accidental “dig-ins” (damage) to underground cables.
- Damage to pad mounted transformers.
- **Cable faults**.

### TROUBLE SHOOTING

- Temporarily **switching** or rerouting power around a problem onto a different circuit to avoid a power outage or serious damage to the power lines and other electrical equipment.

### ELECTRIC POWER GENERATION PROBLEMS

- **Rolling blackouts**.
- Lack of generation capacity.
- Generation problems at the power plants of independent power producers.
- Unscheduled or extended repair and maintenance to utility generators.

### OTHER REASONS

- Equipment theft and/or damage.
- Scheduled maintenance and upgrading of electrical equipment.
- Electric system additions or removals.
- Fires.
- Electrical equipment failures.
- **Flashovers**/contamination (i.e. dust, salt) on insulators.
- Transformer overloads.
- Overloading on a customer’s household circuit.

**Q: What is being done to minimize power outages?**

**A:** At the electric utility company, we:

- Try to ensure that trees do not get close to any unshielded **overhead lines** or energized equipment. Since trees are effective conductors of electricity, this could cause an electrical outage or a potential safety hazard to anyone contacting the tree. Hawaiian Electric has a **Vegetation Management Division** that will, at your request, come out and inspect and trim your trees if they are at risk of contacting an electrical power line. Maui Electric and Hawai'i Electric Light Company have similar services. You can request this service by calling your electric utility's Trouble Line at the number(s) listed on pages 71-77.
- Continuously improve our electrical system.
- Replace and install stronger utility poles.
- Perform regular, scheduled maintenance on our power plants and power transmission and distribution systems.
- Have 24-hour Trouble Service – our crews work around the clock if necessary to get the power back “ON” for you as soon as possible.
- Install distribution automation equipment to improve our response time to power outages.

**Q: What can I do to help minimize the occurrence of power outages?**

**A:** You can:

- Report any damaged electric utility equipment, such as utility poles, transformers, electrical power lines and insulators by calling your electric utility company's Trouble Line at the number(s) listed on pages 71-77.
- Regularly trim your trees to ensure they do not grow into or come into contact with power lines (have a professional arborist trim trees near electrical power lines).
- Call your electric utility company before performing any excavation work to avoid electrical “dig-ins” (damage to our underground system). See “Precautions to take when excavating” on page 32 for instructions.
- Report energy theft and break-ins to electric utility substations and transformers by calling 911 or your electric utility's Trouble Line at the number(s) listed on pages 71-77.
- Never fly kites, balloons or model airplanes near overhead power lines. Use weights on metallic and latex balloons so they don't get loose and entangled in overhead power lines.
- Never shoot or throw anything at insulators or transformers.



# PREPARING FOR A POWER OUTAGE

This chapter provides information on how to prepare for a disaster and a major power outage. It also offers advice on protecting your appliances and electronic equipment from power disturbances.

## INDIVIDUAL PREPARATION

A major disaster may cause an electric power outage, and it can also interrupt water, telephone, and gas services. Normal household activities such as cooking and bathing may be disrupted. Stores may be inaccessible or closed. In an emergency, you must be able to care for yourself and your family. There are certain things you can learn and do to help you cope with almost any type of disaster. Listed here are some helpful tips:

- **Be prepared.** Develop a family emergency plan now before disaster strikes. Be sure all family members know what to do. Decide where the family will meet if separated, where you will seek shelter, and what to take with you if you must evacuate.
- **Keep calm.** Take the actions you have planned. Tune in to the TV or radio for official instructions and information.
- **Know the warning signals and shelter locations.** See the list of Statewide Hurricane Evacuation Shelters on pages 79-83. Listen to the EAS for shelters and opening times. See page 6 to learn more about EAS.
- **Prepare a home survival kit, evacuation kit, and first aid kit.** See pages 39-41 for instructions on how to prepare these kits.
- **Have extra cash or travelers checks on hand.** During a disaster, automated teller machines (ATMs) and credit/debit card processing systems may be out of order.
- **Review additional Emergency Preparedness info.** The following are great informational resources:
  - American Red Cross
  - State and County Emergency Management offices
  - Ready America – the Department of Homeland Security’s campaign to educate and empower Americans to prepare for and respond to natural and man-made disasters. (See pages 71-78 for contact numbers and/or websites).

## EVACUATION PROCEDURES

You will not be asked to leave your home unless your life is seriously threatened. If you are forced to evacuate your home, do the following:

- Listen for shelter information issued over the EAS and follow official instruction by Police and Fire Department units and by Civil Air Patrol aircrafts. See page 6 to learn more about EAS.
- Shut off electricity at the main switch, and gas and water at the main valves, if instructed to do so.
- Assemble your family and leave a note for those absent, stating time, destination and telephone number where you can be reached.
- Secure your residence if time permits. Lock windows and doors. Wedge a dowel or a piece of broom handle into the track of sliding glass doors to prevent them from coming loose when the wind blows.

**NOTE:** *During evacuation for a hurricane, flood, tsunami, or fire, remember: time is very limited.*

- Take an evacuation kit and small valuables along with you.
- If you must leave your home because it is considered unsafe for you, it is unsafe for your pet as well. See “Protection of pets and animals” on page 55 for instructions on how to prepare your pet for an emergency.





## HOME SURVIVAL KIT CHECKLIST

A home survival kit and emergency food and water supply are essential during disasters or extended power outages that leave you confined to your home. When preparing a home survival kit, be sure to include the following:

- Portable radio (battery-, hand-crank-, or solar-powered).
- Chemical light sticks or flashlights and lanterns (battery-, hand-crank-, or solar-powered).
- Extra batteries.
- Manual can opener and bottle opener.
- First aid kit and special medications (have a minimum of seven-day supply of any prescription medications and make sure to rotate medications frequently so they do not expire).
- Seven-day supply of non-perishable foods, needing little or no cooking, and high in nutrition. See the Food Safety & Preparedness chapter on pages 62-66 for suggested food items. Be sure you pack any special dietary foods, baby food and formula if needed.
- Water (pack a minimum of one gallon per person per day, for drinking, cooking, washing and sanitation for at least seven days). Store as much clean water as possible in clean, non-breakable containers. See “Water storage” on pages 43-44, for safe water storage and purification instructions.
- Extra pet food and water for your pet.
- Personal hygiene, sanitary supplies and diapers.
- Ice chest and ice or frozen ice packs.
- Butane, propane, or canned heat stove, and enough fuel for seven days; or charcoal grill and charcoal.  
**NOTE:** *Carbon monoxide is an odorless poisonous gas and can kill you. Never use a generator, grill, camp stove or other gasoline, propane, or charcoal-burning devices indoors or any partially enclosed area. Locate unit away from doors, windows and vents that could allow carbon monoxide to come indoors.*
- Boards, shutters, or other shielding materials for windows or door openings. Permanent storm shutters offer the best protection for windows. A second option is to board up windows with 5/8” marine plywood, cut to fit and ready to install.  
**NOTE:** *Tape does not prevent windows from breaking.*
- Matches or a lighter in a water-proof container.
- Whistle to signal for help.
- Extra cash or travelers checks.



## EVACUATION KIT CHECKLIST

You should have an evacuation kit in case you have to leave your home. When preparing an evacuation kit, include the following:

- Portable radio (battery-, hand-crank, or solar-powered).
  - Chemical light sticks or flashlights and lanterns (battery-, hand-crank-, or solar-powered).
  - Extra batteries.
  - Manual can opener and bottle opener.
  - First aid kit and special medications (have a minimum of seven-day supply of any prescription medications and make sure to rotate medications frequently so they do not expire).
  - Seven-day supply of non-perishable foods, needing little or no cooking, and high in nutrition. See the Food Safety & Preparedness chapter on pages 62-66 for suggested food items. Be sure you pack any special dietary foods, baby food and formula if needed.
  - Water (pack a minimum of one gallon per person per day, for drinking, cooking, washing, and sanitation for at least seven days). Store as much clean water as possible in clean, non-breakable containers. See “Water storage” on pages 43-44, for safe water storage and purification instructions.
  - Extra pet food and water for your pet.
  - Personal hygiene, sanitary supplies and diapers.
  - Sleeping bags or two blankets per person.
  - One complete change of clothing, including sturdy shoes, for each family member.
  - Important papers and documents (i.e. insurance and mortgage papers) in a waterproof bag.
  - Whistle to signal for help.
  - Extra cash or travelers checks.
- Pack additional necessities for any family members with health needs or who require medical care. If taken to a shelter, having these items will allow medical assistants to follow instructions and provides important information about their condition:
- Extra eyeglasses or contact lenses with solution.
  - Hearing aids with extra batteries.
  - Dentures.
  - Medical ID bracelets.
  - List of physicians and medications with dosing schedule. Medications kept in pharmacy labeled bottles (this will expedite obtaining refills during a disaster).
  - List of make, model and serial number of medical devices.



## FIRST AID KIT CHECKLIST

A first aid kit is important. Check and replenish first aid supplies at least once a year. Medical assistance will be difficult to provide after a disaster strikes. Learn first aid and emergency medical care or keep reference material with your medical supplies. Adults and teenagers are encouraged to take first aid and cardiopulmonary resuscitation (CPR) courses. Build or buy a first aid kit containing the following items:

- Adhesive tape, roll 2" wide.
- Applicators, sterile cotton-tipped.
- Antiseptic solution.\*
- Antibiotics (prescribed).\*
- Aspirin (or aspirin-free tabs or caps).\*
- Baking soda, 4 oz.
- Bandage, sterile roll, 2" and 4" wide.
- Bandages, plastic strip, assorted sizes.
- Cough mixture\*.
- Current prescription medications\* (at least a seven-day supply) and medicine cup if necessary.
- Diarrhea medication.\*
- Ear drops.\*
- Laxative.\*
- Motion sickness tablets.\*
- Nose drops.\*
- Paper tissues, 1 package.
- Petroleum jelly.
- Plastic garbage bags.
- Red Cross First Aid reference guide.\*\*
- Rubbing alcohol.\*
- Safety pins of assorted sizes.
- Sanitary napkins.
- Scissors.
- Smelling salts.
- Soap.
- Table salt, 8 oz.
- Toothache remedy.\*
- Tweezers.
- Water purification materials.\*

\* Check expiration dates and replace as needed.

\*\* First Aid reference guides can be purchased from the American Red Cross.

# PLANNING AHEAD FOR HEALTH NEEDS

If you or someone in your care has a condition which requires continuous or special medication, or are on life support systems, or if your medications require refrigeration, contact your doctor on how to deal with emergencies and power outages. The following are answers to frequently asked questions:

**Q: When I don't have electric power, how do I care for my medications that require refrigeration?**

**A:** Always consult your doctor or pharmacist. Generally, very few medications require refrigeration, but for those that do, such as pediatric antibiotics or some types of insulin, you can keep them in the refrigerator, if the door is kept shut, for up to six hours. After that, it would be best to store medications in an ice chest with ice packs or ice. Some pharmacies have contingency plans for power outages and will reissue medications as needed.

**Q: What if the power goes out and I'm on a life support system?**

**A:** Discuss this issue with your physician BEFOREHAND. Also, be sure to contact your electric utility company's **Customer Service Office** at the number(s) listed on pages 71-77 ahead of time, to let them know that an occupant at your residence is on life support. Ideally, you should have a contingency plan set up with the equipment companies or home health agencies. The plan should include the availability of a back-up generator. If not, call for help by dialing 911 or your hospital. Hospitals, of course, have contingency plans for power outages.

**Q: Do public emergency shelters provide support to persons with health needs?**

**A:** Evacuees with health needs must either be capable of taking care of their own needs or be accompanied by a caregiver. See the list of Statewide Public Emergency Shelters on pages 79-83 for more information.

## WATER STORAGE

**Q: Do I need to store water in anticipation of an outage?**

**A:** Yes, you should have enough water to last your family for at least seven days. During a major power outage the **Board of Water Supply** and/or your county's water utility company may not have the power to pump water to your home.

When an emergency is imminent, fill the tub, the washing machine, and all other available containers with water for drinking, cooking, and sanitary needs. See page 59 for instructions on how to sanitize water.

**Q: How much water should I store?**

**A:** The minimum is one gallon per person per day for drinking, cooking, washing and sanitation. Be sure to include pets in your calculations.

**Q: How do I store the water?**

**A:** If the Board of Water Supply advises you to store water, you should:

1. Use clean containers. Do not use containers that stored food with strong odors (mayonnaise, pickles, etc) as the water will pick up the odor during storage.
2. Disinfect containers. Wash containers thoroughly, then rinse in a mild bleach solution (one capful of liquid bleach to one gallon of water), and then rinse thoroughly.
3. Fill the container with water from the tap. Fill the container to the top, keeping a minimal amount of air between the water and the cap. To ensure the water is safe to drink, add one drop of mild liquid bleach per gallon of water, cap, and store in a cool, dark place.

**Q: How long can I store the water?**

**A:** Containers should be rotated every six months. Wash the containers and refill them with clean water. If you notice that the stored water is cloudy, or has an odor, discard it and refill containers as necessary.

For additional information, including video, on how to prepare for a water emergency, visit the Board of Water Supply's website at [www.hbws.org](http://www.hbws.org).

**Q: What if I need to use water from an outdoor water source?**

**A:** Treating and/or drinking water from streams, rivers, ponds or any other outdoor source is not recommended. These sources can contain heavy metals, industrial pollutants, bacteria and viruses that will require extensive treatment to make the water safe to drink. Tune in to the radio for instructions from the Department of Emergency Management for information on where to go for safe drinking water.

If there is floating material in the water or it has a funny odor or dark color, avoid using it. Use saltwater only if you distill it first. **DO NOT DRINK FLOODWATER AS IT MAY HAVE TOXIC POLLUTANTS IN IT.** You should treat all water of uncertain purity before using it for drinking, food preparation or hygiene.

## ICE AND DRY ICE

It is a good idea to always have a few ice packs frozen to help keep perishable items cold during those unexpected power outages.

When you know a power outage may or will occur, freeze ice packs and large blocks of ice (in rinsed out milk cartons or similar containers) before the power goes out. During wide spread or prolonged power outages, it may be difficult to find ice.

Dry ice can also help keep perishable items cold during a power outage. When handling dry ice, follow these safety tips:

### SAFE HANDLING

- Do not touch dry ice with your skin – it can cause severe frostbite. Dry ice temperature is extremely cold (about -215°F). Always handle dry ice with care and use tongs, insulated (thick) gloves, an oven mitt, or a towel. If you suspect you have frostbite, seek medical help immediately.
- Never eat or swallow dry ice. Again, the temperature of dry ice is very cold. If you swallow dry ice, seek medical help immediately.
- Do not place dry ice directly on countertops. The cold temperature could cause the surface to crack.

**PROPER STORAGE**

- Do not store dry ice in an airtight container. The sublimation (vaporization) of dry ice to **carbon dioxide** gas will cause an airtight container to expand or possibly explode. The best place to store dry ice is in a Styrofoam chest with a loose fitting lid.
- Do not store dry ice in your refrigerator-freezer when it is “ON.” The extremely cold temperature will cause the thermostat to turn “OFF” the freezer.

**VENTILATION**

- Never place dry ice in an unventilated room or car. If you are traveling with dry ice in the car or if you are in a small room with dry ice in it, leave a window slightly open to prevent carbon dioxide gas build up. The sublimated carbon dioxide gas will sink to low areas and replace oxygenated air. This could cause suffocation if breathed exclusively. Leave the area immediately if you start to pant or have difficulty catching your breath, or if your fingernails or lips start to turn blue. This is a sign that you have inhaled too much carbon dioxide gas and not enough oxygen.
- Never lie down in, or place small children or pets in homemade “clouds” created with the sublimation of dry ice. These clouds are made of carbon dioxide gas – people and pets could suffocate if they breathe in too much carbon dioxide gas.

**DISPOSAL**

- To dispose of dry ice, place it in a well-ventilated container, outdoors and out of reach from children and pets, and allow it to sublimate.
- Both ice and dry ice are commercially available. Look in the telephone directory yellow pages under “Ice” and “Dry Ice” for suppliers.



# GENERATORS

Some residents have small generators serving as a backup to their electric utility system. Normally, these generators are intended to supply power to only a few household appliances. Before using any generator, be sure to read the manufacturer's manual carefully and follow all instructions. Keep these safety tips in mind when operating generators:

- Generators should be properly grounded in accordance with the instruction manual provided by the manufacturer.
- Ventilation of the generator's exhaust and cooling systems must be well designed to minimize the impact of noise, dangerous fumes and overheating.
- Portable generators emit carbon monoxide, a poisonous gas that is odorless. For this reason, portable generators should never be used indoors or outdoors near open doors, windows, or vents.
- Reserve fuel must be stored in a safe place away from the generator or any other equipment that may ignite the fuel. Use containers designed for fuel storage.
- To avoid possible damage to your appliances or generator, use only those appliances that do not exceed the generator's capacity.

**WARNING:** DO NOT plug the generator's power into a household outlet because the power can backflow into the utility lines and energize a line, making it unsafe for utility crews when they are making repairs. The correct way to use a generator is to connect a heavy-duty, outdoor-rated power cord to the generator. Appliances can then be connected to the power cord. Make sure the outdoor-rated power cord has a sufficient wire gauge to handle the maximum electrical flow or electrical load from the generator.

If you have questions regarding installation of small portable generators, contact your licensed electrician or the manufacturer of your generator.

**Q: Where can I get generators?**

**A:** For the dealer nearest you, look in the telephone directory yellow pages, under "Generators."

**Q: How do I determine the size of a generator to purchase?**

**A:** Consult your dealer. It would be helpful to the dealer if you know the wattage of each appliance you plan to power with the generator.

# PROTECTING YOUR APPLIANCES AND SENSITIVE EQUIPMENT FROM POWER DISTURBANCES

We live in an ever more electronic world. Electricity has not changed, just the way we use it. In the past, brief **power fluctuations** were hardly noticed. Today, things are different. We all use electronic equipment at home and at work that is sensitive to even a split-second loss or change in electric power.

On any given day, momentary **power interruptions** and power fluctuations (power surges or power sags) may occur. These conditions can be caused by utility switching (when the electric utility attempts to isolate a problem in order to maintain power to an area), weather (lightning, wind), damage to the electric utility's equipment, or even the start-up of major appliances like refrigerators or air conditioners.

## **Q: What causes power disturbances?**

**A:** Power disturbances often result from a power interruption, a **power surge**, or a **power sag**, as described below:

### **POWER INTERRUPTION**

A planned or accidental loss of power. An interruption could cause your appliances, lights, and electronic equipment to trip "OFF" and your PC hard drive to "crash."

### **POWER SPIKE/SURGE/TRANSIENT (TOO MUCH VOLTAGE)**

A sudden upward change in voltage. Although such spikes and surges last only a few milliseconds or less, they can cause serious damage to computers other sensitive electronic equipment.

### **POWER SAG (NOT ENOUGH VOLTAGE)**

A drop in voltage usually lasting only a few seconds. Most equipment will not be damaged by a sag. However, motorized appliances such as air conditioners and refrigerators may be affected.

**IMPORTANT:** You have a responsibility to protect your equipment from power interruptions and power fluctuations. The rules of the Hawaiian Electric Companies' tariff, approved by the Public Utilities Commission, say that customers should equip their motors and electronic equipment with devices to protect them from power interruptions and power fluctuations.

**Q: What can I do to protect my sensitive equipment from unexpected momentary power interruptions and power fluctuations?**

**A:** Planning ahead is important to minimize or prevent problems associated with unexpected momentary power interruptions and power fluctuations. Here is what you can do:

**BE A WISE SHOPPER**

Buy equipment that is already protected from potential power problems. Some manufacturers provide back-up power features in products. Check if the equipment you are buying includes a display carry-over feature or a battery back-up. This eliminates blinking digital displays on microwaves, VCRs and radio alarm clocks.

**INSTALL PLUG-IN SURGE SUPPRESSORS**

By redirecting energy associated with over-voltage, **surge suppressors** can provide limited protection against high voltage spikes. Surge suppressors can be purchased at most hardware and electronic supply stores.

Buying a surge suppressor can be a little confusing. Prices and features vary. Avoid making a purchase decision based entirely on lowest cost. It is a good idea to ask the appliance or electronic equipment manufacturer or consult with your owner's manual for the type of suppressor they recommend.

**NOTE:** *Not all power strips are surge suppressors.*

Here are some things to look for when purchasing a surge suppressor (formally known as **transient voltage surge suppressor**):

**UNDERWRITER'S LABORATORIES (UL) MARK**

This certification indicates that the product meets minimum safety and effectiveness standards. To learn more about UL guidelines and valid UL marks, visit the UL website noted on page 78.

**LOW-CLAMPING VOLTAGE**

This is the voltage level at which the suppressor "kicks in" to minimize a power surge. Make sure the suppressor has a voltage rating of at least 400 **volts** or lower. In most cases, the lowest clamping voltage is the best.

## LED INDICATORS

When this light is “ON,” it means the surge protection feature is ready to block a voltage surge. The LED indicator is different from the “ON/OFF” light. If the LED light turns “OFF” during a power surge, this means that the surge protector did its job by protecting your equipment from a surge and must now be replaced.

## SPECIAL SUPPRESSORS

For your TV and VCR, there are suppressors with TV cable/antenna connectors. For your phone answering machine, computer modem, and FAX machine, you can get a suppressor with telephone connectors.

## WARRANTIES

Some surge suppressor warranties offer replacement of the suppressor only. Others pay for repair of equipment damaged as a result of a failed surge suppressor. These manufacturer warranties usually do not compensate you for the time and cost of replacing lost or scrambled computer data. Check the warranty carefully for limits and exclusions.

Consider buying an **uninterruptible power supply (UPS)**. A UPS is an energy storage device that will use power from batteries when the power to your home or office goes out or is unstable. Generally, UPSs are used for computers, which are sensitive and intolerant to power fluctuations. UPSs can provide protection against both over-voltage and under-voltage conditions and sometimes offer voltage regulation. Because of their price, careful consideration should be given before purchasing one. For suppliers of UPSs, look in the telephone directory yellow pages, under “Computers & Computer Equipment-Service & Repair” or “Computers-Dealers.” Always put your sensitive electronic equipment on a separate circuit.

### **Q: What can I do to protect my sensitive equipment during anticipated power interruptions and power fluctuations due to storms, disasters, and rolling blackouts?**

**A:** During a storm or hurricane situation, especially when power outages have already occurred, turn “OFF” and unplug all unnecessary appliances or equipment (i.e. computers, TVs, air conditioners, etc.). Most electronic equipment is partially “ON” even when turned “OFF” and should be unplugged to avoid possible damage. When the power comes back “ON” and is steady (no fluctuations or momentary outages), gradually plug in appliances, one at a time.



# DEALING WITH A POWER OUTAGE

This chapter provides information on what to do in the event of a power outage.

When a power outage occurs and lasts longer than two minutes, we ask for your help and cooperation in our efforts to restore power. The following is a list of common questions and answers that can help you cope with the lack of power, and help the electric utility company restore the power to you as quickly as possible.

## REPORTING A POWER OUTAGE

**Q: When the power goes out, whom do I call?**

**A:** Call your electric utility company's Trouble Line at the number(s) listed on pages 71-77.

**Q: When reporting a power outage, what information do I need to give the electric utility company?**

**A:** Report your address and your situation. If you know the time the power outage started and the probable cause of the outage (i.e. a car accident, a fallen pole, etc.) please report that too.

## RESTORING THE POWER

**Q: When will the power be back on?**

**A:** Power can be restored anytime between a few minutes to several days. It depends on the cause and the severity of the damage to the electric utility's system; the weather conditions; the accessibility of the damaged area; and if special parts are needed to repair the damage. Generally, repairs to underground cables take longer than repairs to overhead lines.

## **POWER INTERRUPTIONS CAUSED BY DAMAGE TO OVERHEAD POWER LINES**

Restoring power to overhead power lines can take any time from a few minutes to several days. We can usually repair the damage and restore electrical service in less than an hour for lines that are located in easy-to-reach areas. If the damaged lines are in hard-to-reach areas, or if special parts are required, it could take several days to perform the necessary repairs.

## **POWER INTERRUPTIONS CAUSED BY DAMAGE TO THE UNDERGROUND SYSTEM**

Restoring power to the underground system can take any time from an hour to several days. If it is a cable problem and we can switch out the faulty cable by restoring service on a standby cable, it can take one to three hours, depending on the length of the cable that needs to be replaced and the number of customers on that cable.

There will be times, such as after a natural disaster, when there is a lot of damage to our lines, transformers and other equipment. During these times, it is very difficult for us to provide an accurate estimate of when your power will be restored. Be assured, though, that we remain committed to restoring service to all of our customers, and our crews will do their best to restore power as soon as possible.

### **Q: Who can I contact about power outages?**

**A:** For isolated power outages, call your electric utility company's Trouble Line at the number(s) listed on pages 71-77. During a major power outage, tune in to the radio broadcast station reports on a battery-, hand-crank, or solar-powered radio. The Hawaiian Electric Companies will work with their respective Emergency Management agencies to provide updates on both radio and TV.

### **Q: How does the electric utility company decide where and when power gets turned on first?**

**A:** We understand the importance of power for all our customers, but we must prioritize the restoration of power. During any major outage, emergency facilities such as hospitals, the Board of Water Supply, wastewater plants, military facilities, and the airports will have first priority. Our priority is to return power to customers as quickly as possible, but in a careful way that keeps the public, our customers, and our crews safe.

**Q: How does the electric utility company decide where and when to dispatch its crews?**

**A:** Often, our crews are out there during heavy winds and rains, and at all hours of the day and night working to restore power. But there are times, such as during a major storm, that the conditions are too hazardous, even for our crews. As soon as those dangerous conditions have subsided, crews will repair power lines and restore power to customers as soon as possible.

Crews are dispatched to meet the restoration priorities described earlier. Thus, there will be times during a restoration effort that crews will have to be pulled off to work on an emergency that has greater priority.

## ROLLING BLACKOUTS

**Q: What is a rolling blackout?**

**A:** A **rolling blackout** is a planned outage, which is due to a lack of generating capacity at the power plant. These outages will normally take place in rotating locations on the island.

**Q: How does the electric utility company decide when and where rolling blackouts will occur?**

**A:** We regard rolling blackouts as a last resort, but there are times, such as during restoration of power to the island after a major outage, that they are necessary. The time and location of rolling blackouts will depend on the availability of our power plants' generation units and our transmission and distribution circuits. We also take into consideration critical facilities such as hospitals when determining the rolling blackout schedule. We will work with TV and radio broadcast stations to alert customers of affected areas, and the approximate times of these blackouts.

**When dealing with rolling blackouts, follow these instructions:**

- Prior to the scheduled start of your area's outage, make sure all your appliances are turned "OFF" and unplugged.
- During the outage, refrain from opening the refrigerator or freezer.
- Stay tuned to your battery-, hand-crank-, or solar-powered radio for further updates.

## FIRE SAFETY

**Q: How can I prevent fire damage to my property during and after a power outage?**

**A:** When a power outage occurs, follow these safety instructions:

- Unplug or turn “OFF” all electric appliances with heating elements (such as ovens, stoves, ranges, electric kettles, electric frying pans, clothes irons and hair dryers) to avoid overloading circuits and fire hazards when power is restored.
- Leave a single lamp (such as a night light) “ON” to alert you when power returns.
- Use chemical light sticks or flashlights and lanterns that are battery-, hand-crank-, or solar-powered instead of candles or fuel-powered lanterns, which can cause fire hazards.
- Never burn charcoal or propane inside homes, tents, campers, vans, cars, trucks, garages, or mobile homes. Carbon monoxide is odorless and can kill you.

## ICE AND DRY ICE

**Q: How do we keep perishable food cold during a power outage?**

**A:** During a power outage, you can use ice or dry ice to help keep perishable foods cold. Depending on how widespread and how long the power outage is, ice and dry ice supply may be limited and difficult to find. See the Food Safety & Preparedness chapter on pages 66-70 for guidelines on how long foods will keep in a refrigerator and freezer. See the “Ice and Dry Ice” section on page 44 for safety tips and more information about ice and dry ice.

## TELEPHONES

**Q: Will my telephone service be affected by a power outage?**

**A:** Generally, your telephone service will not be affected by a power outage. However, cordless telephones rely on electric power to operate their transmitters and to recharge their batteries.

**Q: May I use the telephone during a power outage?**

**A:** Make whatever telephone calls you need to make, but limit those calls to less than a minute if possible. This is to avoid telephone gridlock and to keep lines open for emergency calls.

**NOTE:** *Overloading the circuits reduces the efficiency of the entire telephone system. During major disasters (hurricanes, tsunamis, etc.) you will be requested by the telephone company and the Emergency Management agencies to limit your calls to emergencies only.*

## WATER USE AND SAFETY

**Q: Is it okay to use my tap water during a power outage?**

**A:** During a major power outage, it is essential that residents use water sparingly—for drinking and sanitation purposes only. The Board of Water Supply may not have the power needed to pump water to your home. Under these circumstances, special attention needs to be given to the use of water. If you live in a high-rise, your building's pumps may be out of service (check with your building supervisor).

Listen to the radio for Emergency Management reports that mention the need to limit water use in your area. You may need to use the water stored for emergency use, taking the precautions mentioned on page 43 and review page 59 for instructions on how to sanitize water. You may be able to purchase commercially bottled water for cooking and drinking.

**Q: Can I bathe in streams if I do not have any water?**

**A:** No, the Department of Health recommends against it because of the danger of contracting diseases due to contaminated water.

**Q: Can I flush my toilet?**

**A:** Minimize the flushing of toilets. If the power is out, there is a good chance the sewer system is without its main power source.

## ELEVATOR SAFETY

**Q: What do I do if I am trapped in an elevator during a power outage?**

**A:** If you are trapped in an elevator during a power outage, follow these safety instructions:

- Relax and stay calm until help arrives.
- Use any available emergency communication system in the elevator, such as an alarm button, a two-way speaker system, or an emergency telephone to communicate where you are and who is with you.
- DO NOT try to force open the elevator doors.
- Never try to exit a stalled elevator car—it is extremely dangerous. Always wait for trained and qualified emergency personnel.
- Never attempt to leave the elevator if it is stopped between floors unless specifically instructed by trained and qualified personnel.

## PROTECTION OF PETS AND ANIMALS

**Q: If I have to go to a shelter, what do I do with my pet(s)?**

**A: Pet-friendly shelters** are co-located with some general population shelters. See the list of Statewide Emergency Evacuation Shelters on pages 79-83. Household pets entering a pet friendly shelter must be caged for safety and owners should provide a cage or kennel, water and food for their pets.

The **Hawaiian Humane Society** has prepared a brochure called “Disaster Preparedness” with helpful information for pet owners. Information on disaster preparedness for pets is also available on the **Department for Emergency Management** and Hawaiian Humane Society websites listed on page 78.

**Q: What can I do to prepare for my pet’s safety?**

**A:** Whether a result of a storm or an unexpected power outage, here are some tips on how you can prepare your pet for an emergency:

- Place a rescue alert sticker on your home’s windows and front door to let people know pets are inside. This can also save your pet’s life in the event of a fire. This free sticker can be ordered from the **American Society for the Prevention of Cruelty to Animals** website listed on page 78.
- Know where your nearest pet-friendly shelter is. As a back-up plan, arrange a safe haven with friends or family and designate a pet caregiver.
- Agree on a meeting location for your family and include your pet in that plan.
- Tune in to radio and TV reports for your nearest shelter and instructions from local emergency officials. See pages 79-83 for a list of Statewide Public Emergency Shelters that are pet-friendly.
- Plan to bring your pet indoors well ahead of a natural disaster. Never leave a dog tied up.
- Identify a safe indoor area that is protected from breaking glass, wind and noise. If your pet becomes frightened, consider a crate or carrier.



**Q: How do I provide oxygen for my fish tank?**

**A:** Consult with your pet shop or veterinarian for specific information, but generally, fish can survive without the pump's aeration system for approximately two to 24 hours, depending on the type of fish and the number of fish in the tank. Battery-operated pumps are also available at pet supply stores.

If you are at home, take water from the tank, using a cup, then pour it back into the tank to provide oxygen bubbles for the fish. If you have a saltwater fish tank, it probably has a different aeration system than a fresh water tank. Greater care is needed, so a recommendation is to have a back-up generator for these tanks.



## RECOVERING FROM AN EXTENDED POWER OUTAGE

This chapter covers actions you need to take to protect yourself, your family, your home and your appliances after a prolonged power outage (when power is restored).

After your electric service has been restored, there are certain precautions you need to take, including having your household electrical system checked out by a licensed electrician if your home experienced a flood.

After a disaster such as a hurricane or storm, the various utilities' crews will be repairing damaged lines and other equipment. Special care needs to be taken to avoid serious injury, should you come across a downed power line. See the chapter on Electrical Safety, pages 22-33, for advice on what to do to protect yourself from the hazards of downed power lines or damaged electrical equipment.

### MINIMIZING THE USE OF ELECTRIC POWER AFTER AN OUTAGE

**Q: When my electric service is restored, can I turn “ON” (or use) all of my appliances?**

**A:** It is generally all right to use your appliances after an isolated power outage, but you may experience momentary power interruptions. However, after a major, island-wide power outage, you can help your electric utility company speed up its efforts to restore service to all customers by turning “ON” only those appliances that are necessary. In most cases, the refrigerator/freezer is the one appliance needed most. Avoid turning “ON” the water heater, range, air conditioner, pool pump, hot tub or spa, clothes washer, clothes dryer, or the dish washer until they are needed. Then, turn them “ON” one at a time.

## MOMENTARY POWER INTERRUPTIONS

**Q: When is it safe to use sensitive electronic equipment (computers, TVs, air conditioners etc.) after a power outage?**

**A:** Power fluctuations, including momentary interruptions, may occur after power is restored, so avoid using sensitive electronic equipment until power to your area has been stabilized (no fluctuations or momentary outages). Turn “OFF” and unplug all appliances or equipment not immediately required. Most electronic equipment is partially “ON,” even when turned “OFF” and should be unplugged to avoid possible damage. When the power comes back “ON” and is stable, gradually plug in appliances, one at a time.

**Q: What can I do to protect my sensitive equipment from momentary power interruptions?**

**A:** Planning ahead is important to minimize or prevent problems associated with momentary power interruptions. Please see “Protecting your appliances and sensitive equipment from power disturbances” on pages 47-49, for advice on various options available to help you deal with power interruptions.

## WATER USE AND SAFETY AFTER AN EXTENDED POWER OUTAGE

After a major power outage, especially after a storm, the Board of Water Supply and/or your county’s water utility company will need your cooperation and assistance in their efforts to provide water. Executing water conservation measures, disconnecting devices that automatically use water, shutting off your main water valve and keeping water use to an absolute minimum are great ways to conserve water during an emergency.

**Q: Can I use water as soon as it is available?**

**A:** During the recovery period, water should be conserved. Do not wash cars or water lawns. Postpone doing laundry for as long as possible.

**Q: Is the water safe to drink after an emergency?**

**A:** Listen to the radio for official bulletins on whether the water in your area is safe to drink. Water service will be restored as one of the first utility services following a major power outage. Emergency water service will be coordinated by the Board of Water Supply, through the Department of Emergency Management, including the appropriate state and federal emergency response agencies.

**Q: How can I sanitize water from the tap?**

**A:** Often, the best way to sanitize water is a combination of methods. If a drinking water advisory is issued in your community to disinfect the water from the tap, do the following:

**BOIL: HOW TO BOIL WATER**

The safest method for treating water is boiling, which is doing the following:

1. Fill a large pot with water from the tap.
2. Let any suspended particles settle to the bottom or strain the water through cheesecloth, a sheet, a coffee filter, or other clean, porous material to remove as many solids as you can before treating the water.
3. Bring the water to a vigorous boil and keep it boiling for at least 5 minutes.
4. Pour the water back and forth between two clean pots. This will help it cool and will also add air to the water to make it taste better.

**DISINFECT: HOW TO DISINFECT WATER**

You can use household liquid bleach to kill microorganisms by doing the following:

1. Add 16 drops (about 1/4 teaspoon) of liquid chlorine bleach (5.25% hypochlorite as its only active ingredient) for each gallon of water.
2. Stir and let the water stand for 30 minutes. If it gives off a slight chlorine smell and looks clear, it is okay to use. **DO NOT** use scented beach, colorsafe bleach or bleaches with added cleaners.
3. If you do not smell chlorine, or if the water is still cloudy, do not use it for drinking or cooking.

**DISTILL: HOW TO COLLECT DISTILLED WATER**

Distillation involves boiling water and then collecting the vapor that condenses back to water which takes out salt and other impurities, by doing the following:

1. Using clean containers, fill a pot halfway with water.
2. Tie a cup to the handle of the lid of the pot so that the cup will hang right-side-up when the lid is upside-down (make sure the cup is not submerged into the water).
3. Boil the water for 20 minutes. Be sure to take precautions to avoid accidental burns from hot steam and water.
4. The water that drips from the lid into the cup is distilled.

Please consult the Board of Water Supply's website at [www.hbws.org](http://www.hbws.org) for additional information on emergency water preparedness.

# CLEANING UP AFTER A STORM

The American Red Cross and FEMA have published an excellent booklet, "Repairing Your Flooded Home," that takes you through a comprehensive, step-by-step approach in helping you recover from floods or any water damage experienced by you and your home. Much of the advice listed below comes from that booklet.

**NOTE:** *The Hawaiian Electric Companies will always advise you to have your home inspected and repaired by a licensed electrician whenever your home has experienced water damage. If your appliances got wet, have them inspected and repaired by a professional before using them. Attempting to inspect and repair your home's electrical system and appliances by yourself could result in serious injury or death.*

**Q: Is it safe to enter my home after it has been flooded?**

**A:** If there is standing water next to the outside walls of your home, do not go in. You will not be able to tell if the building is safe or structurally sound. Before you go in, walk carefully around the outside of your house and check for loose power lines and gas leaks. You will know if there is leaking gas if you smell the putrid, distinctive odor that is added to gas to let people know gas is leaking. If you find downed power lines or gas leaks, call your electric or gas utility company's Trouble Line at the number(s) listed on pages 71-77.

**Q: Is it safe to use electricity in my home after it has been flooded?**

**A:** No. Electricity and water do not mix. Turn "OFF" the power at your home. Even if the electric utility has turned "OFF" the power to your area, you must still make certain the power supply to your home is disconnected. You do not want the electric utility company to turn it "ON" without warning while you are working on it.

The electricity must be turned "OFF" at the main fuse box or circuit breaker panel. See instructions in the "Electrical Safety" chapter on page 23. The electric utility company may have removed your electric meter, but this does not always turn "OFF" the power supply.

If you have to step in water to get to your main fuse box or circuit breaker, call a licensed electrician. If you can get to your main fuse box or circuit breaker without going through or standing in water, you can turn "OFF" the power yourself.

**Q: Is it safe to use my appliances after a flood?**

**A:** Check appliances and if the appliances are wet, turn “OFF” the electricity at the main fuse box or circuit breaker. Then unplug appliances and let them dry out. Have the appliances checked by a professional before using them again.

Refrigerators, freezers, and ovens may have foam insulation and sealed components that suffered little water damage. But these appliances hold food and so they should be cleaned, disinfected, and checked by a professional or replaced. If your repair person says an expensive appliance should be replaced, get the opinion in writing and discuss it with your insurance adjuster before you spend money for another one.

## FILING A CLAIM WITH YOUR ELECTRIC UTILITY COMPANY

**Q: How do I file a claim with the electric utility company?**

**A:** Power outages during a storm or hurricane are sometimes unavoidable. Equipment and property damage due to loss of power during storm conditions are usually not reimbursable by the electric utility company.

However, if you feel there are circumstances for which you are entitled to a reimbursement, you can send a letter with the necessary information to the appropriate utility company. Or call the **Claims Department** at the appropriate utility company and a representative will discuss the information needed to review your claim. For a claim to be valid with the Hawaiian Electric Companies, it must be filed within thirty (30) days of the interruption of service. Refer to pages 71-77 in the Reference Guide for Claims Department phone numbers and locations.



# FOOD SAFETY AND PREPAREDNESS

This chapter helps you plan and prepare food for an emergency or extended power outage.

## EMERGENCY FOOD STORAGE

Be prepared, and always have on hand an emergency food supply that will last at least seven days for each individual in the household. See page 64 for a suggested five day sample menu. See pages 65-66 for a suggested food supply list for two adults and one infant (adjust proportions as appropriate for larger or smaller families). Remember to pack foods for persons with special dietary needs and follow these emergency food storage tips:

- Keep canned foods in a cool, dry place.
- Protect packaged food in tightly closed cans or metal containers.
- Select foods with a shelf life of at least six months, but preferably one year or more.
- Use canned foods that do not require cooking, water, or special preparation.
- Date and rotate food supplies by using the oldest foods first.

**NOTE:** *Replace regularly with a new supply.*

## SUPPLIES FOR PREPARING MEALS WHEN THE POWER IS OUT

It is important to also be equipped with supplies necessary for preparing emergency foods. Important supplies include:

- Disposable plates, forks, spoons, knives.
- Disposable hot and cold cups.
- Paper napkins or towels.
- Bottle opener and manual can opener.
- Trash bags.
- Camp stove or canned heat stove and enough fuel for seven days; or hibachi and charcoal.
- A supply of matches or a lighter in a water-proof container.
- Heavy duty aluminum foil.
- Plastic storage bags.

# RECIPES FOR EMERGENCY FOOD SAMPLE MENU

## SALMON CURRY

### INGREDIENTS:

1 can (10 3/4 oz.) cream of mushroom soup  
1/3 cup milk  
1/2 teaspoon curry powder  
1 can (7 3/4 oz.) pink or red salmon, drained

### DIRECTIONS:

In a saucepan, combine soup, milk, and curry powder. Break salmon into chunks; add to sauce, stirring gently. Heat thoroughly. Serve with rice. Makes 4 servings.

**NOTE:** *Tuna may be used in place of salmon. If available, sauté 1 cup of chopped onions in 2 tablespoons of butter or margarine, then follow recipe as written.*

## QUICK CHICKEN A LA KING

### INGREDIENTS:

1 can (10 3/4 oz.) cream of mushroom soup  
1/2 cup milk  
1 can (12 1/2 oz.) chunked chicken, drained  
1 can (8 1/2 oz.) peas, drained  
Dash of pepper

### DIRECTIONS:

In a saucepan, combine soup and milk; stir until smooth. Add chicken, peas and pepper. Heat thoroughly. Serve over rice. Makes 4 to 5 servings.

# FIVE-DAY SAMPLE MENU

DAY	BREAKFAST	LUNCH	DINNER
DAY 1	Instant orange drink Cold cereal/milk Crackers with peanut butter & jelly Instant coffee/tea	Tuna with crackers Canned soup Canned fruit Fruit juice Instant coffee/tea	Canned beef stew Rice Canned vegetables Canned fruit Instant coffee/tea
DAY 2	Instant orange drink Hot cereal/milk Crackers with peanut butter & jelly Instant coffee/tea	Canned chili with beans Rice Canned fruit Fruit juice Instant coffee/tea	Salmon or tuna curry* Rice Canned vegetable Canned fruit Instant coffee/tea
DAY 3	Instant orange drink Cold cereal/milk Crackers/Vienna sausage Instant coffee/tea	Canned luncheon meat with crackers Canned soup Canned fruit Fruit juice Instant coffee/tea	Canned corned beef hash patties with catsup Rice Canned vegetable Instant coffee/tea
DAY 4	Instant orange drink Hot cereal/milk Crackers with peanut butter & jelly Instant coffee/tea	Canned soup Canned fruit Fruit juice Instant coffee/tea	Deviled ham with crackers Canned pork & beans/ Vienna sausage Rice Canned vegetable Canned fruit Instant coffee/tea
DAY 5	Instant orange drink Cold cereal/milk Canned luncheon meat with crackers Instant coffee/tea	Canned corned beef with crackers Canned soup Canned fruit Fruit juice Instant coffee/tea	Quick Chicken a la King* Rice Canned vegetable Canned fruit Instant coffee/tea

**NOTE:** Repeat menu cycle as needed.

\*Hawaiian Electric recipe – see page 63

# SEVEN DAY FOOD SUPPLY

	FOOD	AMOUNT	APPROXIMATE SHELF LIFE (MONTHS)
MILK, CANNED MEAT, POULTRY, FISH	Non-fat dry milk	12 envelopes (1 qt.)	6
	Tuna	2 cans (6 1/2 oz.)	12
	Beef stew	2 cans (8 oz.)	18
	Chili with beans	3 cans (15 1/2 oz.)	18
	Red or pink salmon	2 cans (7 3/4 oz.)	12
	Vienna sausage	3 cans (5 oz.)	18
	Canned luncheon meat	3 cans (12 oz.)	18
	Corned beef hash	3 cans (15 oz.)	18
	Corned beef	3 cans (12 oz.)	18
	Deviled ham	3 cans (4 1/2 oz.)	18
	Pork and beans	3 cans (16 oz.)	18
	Chunked chicken	2 cans (12 1/2 oz.)	18
	Assorted soups	6 cans (10 3/4 oz.)	12
	Cream of mushroom soup	3 cans (10 3/4 oz.)	12
CANNED FRUIT & VEGETABLES	Assorted fruits	12 cans (8 oz.)	12
	Assorted vegetables	7 cans (8 oz.)	12
	Assorted fruit juices	18 cans (12 oz.)	12
	Seedless raisins	2 boxes (15 oz.)	12
CEREALS & BAKED GOODS	Instant hot cereal	2 boxes or 8 packs (10 oz.)	12
	Cold cereal (cornflakes, bran, etc.)	2 boxes (4 oz.)	12
	Soda crackers	3 packs (13 oz.)	1-2
	Rice	3 lbs.	Indefinitely*
	Dry pasta	2 boxes (16 oz.)	Indefinitely*
	Cookies	2 packs	1-2
BABY FOODS	Formula, ready-to-feed	20 cans (8 oz.)	12
	Formula, powdered	2 cans (16 oz.)	6
	Fruit juice	7 jars (4 oz.)	Refer to label
	Baby cereal	3 boxes	12
	Plain fruit	18 jars (4 oz.)	Refer to label
	Plain meat	15 jars (4 oz.)	Refer to label
	Plain vegetables	15 jars (4 oz.)	Refer to label

	FOOD	AMOUNT	APPROXIMATE SHELF LIFE (MONTHS)
MISCELLANEOUS	Vegetable oils	1 pint	Indefinitely*
	Sugar, granulated	1 box (1 lb.)	24+
	Jelly	1 jar (16 oz.)	12
	Instant orange drink	2 bottles (14 oz.)	24
	Instant coffee/tea/cocoa	2 bottles each (4 oz.)	Indefinitely*
	Non-dairy creamer	1 bottle (6 oz.)	18
	Salt/pepper	1 small shaker each	Indefinitely*
	Peanuts	2 jars	12
	Mustard	2 jars (6 oz.)	Refer to package label
	Catsup	1 bottle (14 oz.)	Refer to package label
	Canned soda/juice	12 cans	12
	Peanut butter	2 jars (18 oz.)	12

**NOTE:** *Serving size for 2 adults and one infant. Be sure to also include food for any pets, as needed.*

\*If the container has been opened, unrefrigerated, or improperly stored, the shelf life for these items may be less.

## FOOD SAFETY DURING AND AFTER A POWER OUTAGE

The following information has been adapted from the Hawai'i Department of Health's "Food Safety—During and After a Power Outage" brochure and the U.S. Department of Health and Human Services [foodsafety.gov](http://foodsafety.gov) website:

**Q: Is food in the refrigerator safe during a power outage?**

**A:** It should be safe as long as power is out no more than four hours. Keep the door closed as much as possible. Discard any perishable food that has been above 41°F for over two hours. Always discard any items in the refrigerator that have come into contact with raw meat juices.

**Q: How long will food stay cold in the refrigerator after the power goes out?**

**A:** Up to four to six hours if the door is kept closed. Use a food thermometer to check the temperature of perishable foods (such as meat, poultry, fish, eggs and leftovers) right before you cook or eat it. If the food is 41°F or colder, it is safe to eat.

**Q: How long will frozen foods stay frozen in the freezer?**

**A:** Foods will keep frozen in the freezer for about one to three days for a fully stocked freezer and about one day for a half-full freezer.

**Foods will remain frozen longer if:**

- The freezer door remains closed.
- The freezer is full or nearly full – the less crowded the freezer, the shorter the time the food will remain frozen.
- The outside air temperature is cool.
- The freezer is large and well insulated – small freezers do not keep foods frozen as long.
- The food has a higher water content (meats, soups, seafood, etc.)

**NOTE:** *Food that has thawed completely and has not been held at or below 41°F should be cooked and eaten immediately. If your food still has ice crystals, it is safe to refreeze (if power is restored).*

**Q: If the power is not expected to be restored for an extended period of time, what are my options?**

**A:** If possible, transfer your food to a freezer that is still powered (such as a friend's freezer or a commercial frozen food storage warehouse). Use dry ice if available and remember to remove the dry ice from the freezer once the power is restored. See pages 44-45 for more information about dry ice.

**Q: Is dry ice safe to use?**

**A:** Do not touch dry ice with your skin—see pages 44-45 for more information on the safe handling of dry ice.

**Q: How much dry ice will I need?**

**A:** Use 2 1/2 to 3 pounds of dry ice per cubic foot of freezer space (50 pounds will keep an 18 cubic foot freezer safe for at least two days). Place ice on each shelf. Pack food tightly with dry ice to keep food frozen longer. Pack empty spaces with crumpled newspaper or blankets to slow air circulation and make dry ice last longer. Wrap dry ice in paper to slow sublimation (“melting”).

**CAUTION:** Dry ice is frozen carbon dioxide. Unlike most solids, it does not melt into a liquid, but instead changes directly into a gas. This process is called sublimation. Allow the gas fumes to vent after opening the freezer – stand back when opening the freezer door. Never store dry ice in glass or other sealed, airtight containers.

Spoiled food may have off colors or unusual odors. However, food poisoning and food spoilage are caused by different bacteria. Food that has become tainted by food poisoning bacteria cannot be detected by sight, smell, touch, or taste. Do not taste questionable food. When in doubt, throw it out.

**See the food lists below for instructions on when to save or throw out certain types of refrigerator and freezer foods:**

<b>REFRIGERATOR FOODS WHEN TO SAVE AND WHEN TO THROW OUT</b>	
<b>FOOD</b>	<b>If held above 41°F for over 2 hrs</b>
<b>MEAT, POULTRY, SEAFOOD</b>	
Raw or leftover cooked meat, poultry, fish, or seafood; soy meat substitutes	Discard
Thawing meat or poultry	Discard
Meat, tuna, shrimp, chicken, egg salad, lunchmeats, hot dogs, bacon, sausage, dried beef	Discard
Gravy, stuffing, broth	Discard
Pizza – with any topping	Discard
Canned hams labeled “Keep Refrigerated”	Discard
Canned meats and fish, opened	Discard
<b>CHEESE</b>	
Soft cheeses: blue/bleu, Roquefort, Brie, Camembert, cottage, cream, Edam, Monterey Jack, ricotta, mozzarella, Muenster, Neufchatel, queso blanco, queso fresco	Discard
Shredded cheeses, low-fat cheeses	Discard
Processed or hard cheeses (Cheddar, Colby, Swiss, Parmesan, provolone, Romano, etc.)	Safe
Grated Parmesan, Romano, or combination (in can/jar)	Safe
<b>DAIRY</b>	
Milk, cream, sour cream, buttermilk, evaporated milk, yogurt, eggnog, soy milk	Discard
Butter, margarine	Safe
Baby formula, opened	Discard
<b>EGGS</b>	
Fresh eggs, hard-cooked in shell, egg dishes, egg products (custards and puddings)	Discard

<b>FOOD</b>	<b>If held above 41°F for over 2 hrs</b>
<b>CASSEROLES, SOUPS, STEWS</b>	Discard
<b>FRUITS</b>	
Fresh fruits, cut	Discard
Fresh whole fruits, coconut, raisins, dried fruits, candied fruits, dates	Safe
<b>SAUCES, SPREADS, JAMS</b>	
Opened mayonnaise, tartar sauce, horseradish	Discard if held above 50°F for over 8 hours
Peanut butter, jelly, relish, taco sauce, mustard, catsup, olives, pickles, worcestershire, soy, barbecue, Hoisin sauces	Safe
Fish sauces (oyster sauce)	Discard
Opened vinegar-based dressings	Safe
Opened creamy-based dressings or spaghetti sauces	Discard
<b>BREAD, CAKES, COOKIES, PASTA, GRAINS</b>	
Bread, rolls, cakes, muffins, waffles, pancakes, etc.	Safe
Refrigerator biscuits, rolls, cookie dough, cheesecake	Discard
Cooked or fresh pasta, rice, potatoes, taro	Discard
Pasta salads with mayonnaise or vinaigrette	Discard
<b>PIES, PASTRY</b>	
Pastries, cream filled	Discard
Pies – custard, cheese filled, or chiffon; quiche	Discard
Pies, fruit	Safe
<b>VEGETABLES</b>	
Whole and raw vegetables, herbs, spices	Safe
Greens, pre-cut, pre-washed, packaged	Discard
Cooked vegetables, tofu, vegetable juice	Discard
Baked potatoes, potato salad	Discard
<b>OTHER</b>	
Meat topped pizzas and cold cuts	Discard
Stews and soups	Discard

Refreezing food may result in some loss of quality and should be used as soon as possible. When cooking refrozen food, keep in mind that they have been thawed once before. If thawing is necessary, do it in the refrigerator, or use the microwave and cook immediately after.

**FREEZER FOODS  
WHEN TO SAVE AND WHEN TO THROW OUT**

<b>FOOD</b>	<b>If thawed and still contains ice crystals and feels as cold as if refrigerated</b>	<b>If thawed and held above 41°F for over 2 hrs</b>
<b>MEAT, POULTRY, SEAFOOD</b>		
Beef, veal, lamb, pork, ground meats, poultry, variety meats	Refreeze	Discard
Casseroles, stews, soups	Refreeze	Discard
Fish, shellfish, seafood	Refreeze*	Discard
<b>DAIRY</b>		
Milk, soft cheeses	Refreeze*	Discard
Eggs (shelled), egg products	Refreeze	Discard
Ice cream, frozen yogurt	Discard	Discard
Hard cheeses	Refreeze	Refreeze
Shredded cheeses	Refreeze	Discard
Casseroles containing milk, cream, eggs, soft cheeses	Refreeze	Discard
Cheesecake	Refreeze	Discard
<b>FRUITS</b>		
Commercially packaged	Refreeze*	Refreeze**
<b>VEGETABLES</b>		
Commercially packaged	Refreeze*	Discard if held above 41°F for over 6 hours
<b>BREADS, PASTRIES</b>		
Breads, rolls, muffins, cakes (without custard fillings)	Refreeze	Refreeze
Cakes, pies, pastries with custard or cheese filling	Refreeze	Discard
Pie crusts, commercial and homemade bread dough	Refreeze*	Refreeze*
<b>OTHER</b>		
Casseroles – pasta, rice based	Refreeze	Discard
Flour, cornmeal, nuts	Refreeze	Refreeze
Frozen meals (convenience foods)	Refreeze	Discard

\*Some quality loss may occur.

\*\*Discard if mold, yeasty smell, or sliminess develops.



# REFERENCE GUIDE

This chapter lists important telephone numbers and addresses you may find useful during an emergency or extended power outage.

## O'AHU

---

<b>American Red Cross (State Chapter)</b> Regular Hours: Mon - Fri; 8:00am - 4:30pm	734-2101
<b>Board of Water Supply</b> <i>Trouble Line</i> Hours: 24 hours a day, seven days a week	748-5000
<b>Department of Emergency Management City and County of Honolulu</b> <i>TDD Service</i> Regular Hours: Mon - Fri; 7:45am - 4:30pm Address: 650 South King Street   Honolulu, HI 96813	723-8960 723-8966
<b>Department of Health</b> (for questions about food safety) Regular Hours: Mon - Fri; 7:45am - 4:30pm	586-8000
<b>Emergency Calls</b> <i>Police, Fire, Ambulance</i>	911
<b>Hawai'i Emergency Management Agency (O'ahu)</b> (formally known as State Civil Defense) Regular Hours: Mon - Fri; 7:45am - 4:30pm	733-4300
<b>Hawai'i Gas</b> <i>Customer Service Office</i> Regular Hours: Mon - Fri; 7:30am - 4:30pm	535-5933
<i>Emergency Dispatch Office</i> Hours: 24 hours a day, seven days a week	526-0066

**Hawai'i One Call Center** 1-866-423-7287  
(to request marking of underground lines in and  
around your property prior to excavation work) or 811  
Hours: 24 hours a day, seven days a week

**Hawaiian Electric Company**  
*Customer Service Office* 548-7311  
Regular Hours: Mon - Fri; 7:30am - 6:00pm

*Claims Department* 543-4624  
Regular Hours: Mon - Fri; 7:30am - 4:00pm  
Address: PO Box 2750 | Honolulu, HI 96840-0001

*Education & Consumer Affairs Department* 543-7511  
Regular Hours: Mon - Fri; 7:30am - 4:00pm

*Trouble Line* Toll Free 1-855-304-1212  
(to report power outages, downed  
power lines, or trees on power lines)  
Hours: 24 hours a day, seven days a week

**Hawaiian Telcom**  
*24 Hour Customer Care Office* 643-6111  
Hours: 24 hours a day, seven days a week or 611

**Streetlights Out**  
*City* 768-5300  
*State* 831-6714

## MAUI, MOLOKA'I, LĀNA'I

---

**American Red Cross (Maui County)** 244-0051  
Regular Hours: Mon - Fri; 8:00am - 4:00pm

**Department of Health** 984-8230  
(for questions about food safety)  
Regular Hours: Mon - Fri; 7:45am - 4:30pm

**Department of Water Supply (Maui, Moloka'i)**  
*Trouble Line* 270-7633  
Hours: 24 hours a day, seven days a week

## Emergency Calls

*Police, Fire, Ambulance* 911

## Hawai'i Emergency Management Agency (Maui)

Regular Hours: Mon - Fri; 7:45am - 4:30pm

Maui Office 270-7285

After Hours (Maui Police Dispatch) 244-6400

Moloka'i Office 553-9060

After Hours 553-5355

Lāna'i Office 565-7479

After Hours 565-6428

Maui County Address: 200 South High Street | Wailuku, HI 96793

## Hawai'i Gas

*Customer Service Office* 877-6557

Regular Hours: Mon - Fri; 7:30am - 4:30pm

*Emergency Dispatch Office* 1-808-526-0066

Hours: 24 hours a day, seven days a week

## Hawai'i One Call Center

1-866-423-7287

(to request marking of underground lines in and around your property prior to excavation work)

or 811

Hours: 24 hours a day, seven days a week

## Hawaiian Telcom

*24 Hour Customer Care Office* 643-6111

Hours: 24 hours a day, seven days a week or 611

## Lāna'i Water Company

Regular Hours: Mon - Fri; 7:00am - 3:30pm 565-3352

After Hours: 559-3352

## Maui Electric Company

*Claims Department* 871-7777

Regular Hours: Mon - Fri; 7:30am - 4:00pm

Moloka'i and Lāna'i (call toll free) 1-877-871-8461

Address: PO Box 398 | Kahului, HI 96733-6898

*Customer Education* 871-2339

Regular Hours: Mon - Fri; 7:00am - 4:00pm

*Maui Electric Company continued...*

*Customer Service Office*

Maui Office 871-9777  
Moloka'i and Lāna'i (call toll free) 1-877-871-8461  
Regular Hours: Mon - Fri; 7:00am - 5:00pm

*Trouble Line*

(to report power outages, downed power lines,  
trees on power lines, or street lights out)

Maui Office 871-7777  
Moloka'i and Lāna'i (call toll free) 1-877-871-8461  
Hours: 24 hours a day, seven days a week

## **HAWAI'I (BIG ISLAND)**

---

**American Red Cross** 935-8305  
Regular Hours: Mon - Fri; 8:00am - 4:00pm

**Department of Health**

(for questions about food safety)

Hilo Office 933-0917  
Kona Office 322-1507  
Regular Hours: Mon - Fri; 7:45am - 4:30pm

**Department of Water Supply**

*Trouble Line* 961-8790  
Hours: 24 hours a day, seven days a week

**Emergency Calls**

*Police, Fire, Ambulance* 911

**Hawai'i Emergency Management Agency (Hawai'i)** 935-0031

Regular Hours: Mon - Fri; 7:45am - 4:30pm  
After Hours (Hawai'i Police Dispatch) 935-3311  
Address: 920 Ululani Street | Hilo, HI 96720

**Hawai'i Electric Light Company**

*Claims Department* 969-0279  
 Regular Hours: Mon - Fri; 7:30am - 3:30pm  
 Address: PO Box 1027 | Hilo, HI 96720-1027

*Customer Service Office*  
 Hilo, Puna, and Ka'ū Office 969-6999  
 Regular Hours: Mon - Fri; 7:30am - 4:30pm  
 Kona Office 329-3584  
 Regular Hours: Mon - Fri; 7:30am - 4:30pm  
 Kamuela Office 885-4605  
 Regular Hours: Mon - Fri; 7:30am - 3:30pm

*Educational Services Division* 969-0137  
 Regular Hours: Mon - Fri; 7:30am - 3:30pm

*Trouble Line* 969-6666  
 (to report power outages, downed power lines,  
 or trees on power lines)  
 Hours: 24 hours a day, seven days a week.

**Hawai'i Gas**

*Customer Service Office* 935-0021  
 Regular Hours: Mon - Fri; 7:30am - 4:30pm

*Emergency Dispatch Office* 1-808-526-0066  
 Hours: 24 hours a day, seven days a week

**Hawai'i One Call Center**

(to request marking of underground lines in and  
 around your property prior to excavation work) 1-866-423-7287  
 or 811  
 Hours: 24 hours a day, seven days a week

**Hawaiian Telcom**

*24 Hour Customer Care Office* 643-6111  
 Hours: 24 hours a day, seven days a week or 611

**Streetlights Out**

*Hawai'i County Traffic Division* 961-8341  
 Regular Hours: Mon - Fri; 7:30am - 4:00pm  
 After Hours (Hawai'i Police Dispatch) 935-3311

# KAUA'I

---

<b>American Red Cross (Kaua'i)</b>	245-4919
Regular Hours: Mon - Fri; 8:00am - 4:00pm	
<b>Department of Health</b>	241-3323
(for questions about food safety)	
Regular Hours: Mon - Fri; 7:45am - 4:30pm	
<b>Department of Water</b>	
<i>Trouble Line</i>	245-5444
Regular Hours: Mon - Fri; 6:30am - 4:30pm	
After Hours (Kaua'i Police Dispatch)	241-1711
<b>Emergency Calls</b>	
<i>Police, Fire, Ambulance</i>	911
<b>Hawai'i Emergency Management Agency (Kaua'i)</b>	241-1800
Regular Hours: Mon - Fri; 7:45am - 4:30pm	
After Hours (Kaua'i Police Dispatch)	241-1711
Address: 3990 Kaana Street, Suite 100 Lihue, HI 96766	
<b>Hawai'i Gas</b>	
<i>Customer Service Office</i>	245-3301
Regular Hours: Mon - Fri; 7:30am - 4:30pm	
<i>Emergency Dispatch Office</i>	1-808-526-0066
Hours: 24 hours a day, seven days a week	
<b>Hawai'i One Call Center</b>	1-866-423-7287
(to request marking of underground lines in and around your property prior to excavation work)	or 811
Hours: 24 hours a day, seven days a week	
<b>Hawaiian Telcom</b>	
<i>24 Hour Customer Care Office</i>	643-6111
Hours: 24 hours a day, seven days a week	or 611

**Kaua'i Island Utility Cooperative**

*Customer Service Office* 246-4300  
 (for emergencies, power interruptions)  
 Regular Hours: Mon - Fri; 7:30am - 4:30pm

*Trouble Line*  
 After Hours 246-8200

**ALL ISLANDS**

---

**National Flood Insurance Program**

*Customer Service Office* 1-800-638-6620  
 Fax 1-800-742-3148  
 Email NFIPAgencyServices@nationalfloodservices.com

**USDA Food Safety and Inspection Service**

*Meat and Poultry Hotline* 1-888-674-6854  
 (for food safety questions)  
 Regular Hours: Mon - Fri; 10am - 4pm (ET)  
 24/7 Food Safety Automated Response System AskKaren.gov  
 Email mphotline.fsis@fsis.usda.gov

## OTHER SOURCES OF USEFUL INFORMATION

- American Red Cross website: [www.redcross.org](http://www.redcross.org)
- American Red Cross, Hawai'i State Chapter website: [www.hawaiiiredcross.org](http://www.hawaiiiredcross.org)
- American Veterinary Medical Association Disaster Preparedness website: [www.avma.org/disaster/default.asp](http://www.avma.org/disaster/default.asp)
- American Society for the Prevention of Cruelty to Animals website: [www.asPCA.org/pet-care/disaster-preparedness](http://www.asPCA.org/pet-care/disaster-preparedness)
- The Board of Water Supply website: [www.hbws.org](http://www.hbws.org)
- Civil Defense/Emergency Management websites:
  - Hawai'i County Civil Defense website: [www.HawaiiCounty.gov/civil-defense](http://www.HawaiiCounty.gov/civil-defense)
  - Kaua'i County Civil Defense website: [www.Kauai.gov](http://www.Kauai.gov)
  - Maui County Civil Defense website: [www.co.maui.hi.us/departments/CivilDefense](http://www.co.maui.hi.us/departments/CivilDefense)
  - City and County of Honolulu Department of Emergency Management website: [www.OahuDEM.org](http://www.OahuDEM.org)
  - Hawai'i Emergency Management Agency (formerly State Civil Defense) website: [www.scd.Hawaii.gov](http://www.scd.Hawaii.gov)
- The Emergency Management Section of your phone book
- "Disaster Planning: Food" publication: prepared by the Hawai'i Department of Health, Nutrition Branch
- "Disaster Preparedness" publication: prepared by the Hawaiian Humane Society; available at: [Hawaiianhumane.org/disaster-readiness.html](http://Hawaiianhumane.org/disaster-readiness.html)
- Emergency Preparedness Resources for Maui County Residents website: [www.mauiready.org](http://www.mauiready.org)
- Hawaiian Electric Emergency Preparedness website: [Hawaiianelectric.com/prepare](http://Hawaiianelectric.com/prepare)
- "Family Emergency Plan": prepared by the Federal Emergency Management Agency; available at: [www.ready.gov/make-a-plan](http://www.ready.gov/make-a-plan)
- Federal Emergency Management Agency website: [www.fema.gov](http://www.fema.gov) and [www.ready.gov](http://www.ready.gov)
- Flood Smart website: [www.floodsmart.gov](http://www.floodsmart.gov)
- National Flood Insurance Program website: [www.nfipservices.com](http://www.nfipservices.com)
- National Weather Service Honolulu Forecast Office website: [www.weather.gov/Hawaii](http://www.weather.gov/Hawaii)
- National Oceanic and Atmospheric Administration website: [www.noaa.gov](http://www.noaa.gov)
- The Pacific Disaster Center website: [www.pdc.org](http://www.pdc.org)
- The Pacific Tsunami Warning Center website: [www.ptwc.weather.gov](http://www.ptwc.weather.gov)
- "Turn Around Don't Drown" NOAA National Weather Service campaign website: [tadd.weather.gov](http://tadd.weather.gov)
- Underwriter's Laboratories website: [www.ul.com](http://www.ul.com)

## STATEWIDE PUBLIC EMERGENCY SHELTERS

Statewide Emergency Evacuation Shelters may not be open during evacuations for a Tsunami warning. Your local emergency management agency will provide locations of tsunami refuge areas or assembly areas through local media. For more information, contact [AskCivilDefense@scd.hawaii.gov](mailto:AskCivilDefense@scd.hawaii.gov).

Evacuees with health needs must either be capable of taking care of their own needs or be accompanied by a caregiver.

**Pet Friendly Shelters** are co-located with some general population shelters. Household pets entering a pet friendly shelter must be caged for safety and owners should provide water and food for their pets.

During an emergency or threat of disaster emergency management information will be broadcast over local radio and TV stations. When an evacuation is necessary these broadcasts may include information about the location of Public Emergency Shelters in affected areas. More information, including the location of shelters designated for people with special health needs, and facilities for household pets may be broadcast, as well as when volunteers will be available to open shelters and direct evacuees to the appropriate areas.

Since Public Emergency Shelters do not stock supplies, please bring provisions from your emergency supply kit at home. You will need at least seven days worth of food, water, and personal items for yourself, family members, and household pets.

Please review this list of Statewide Public Emergency Shelters and note the two or three closest to your home. The shelters are listed by county (last updated in 2013).

### LEGEND:

MS = Medical Support + General Population

P = Pet Friendly + General Population

MS/P = Medical Support + Pet Friendly + General Population

## O'AHU

---

*Evacuation and shelter information for O'ahu will be provided by Department of Emergency Management, City and County of Honolulu at 808-723-8960.*

### **North Shore (Ka'ena Pt.-Kahuku)**

Waialua High and Intermediate  
[MS/P]

### **Leeward Coast**

#### **(Mākua-Waipahu and Vicinity)**

August Ahrens Elementary  
Barbers Point Elementary  
Campbell High [MS/P]  
'Ewa Beach Elementary  
'Ewa Elementary [MS]  
Holomua Elementary  
Honowai Elementary [MS]  
'Ilima Intermediate [MS/P]  
Ka'imiloa Elementary  
Kaleiopu'u Elementary  
Kamaile Elementary  
Kanoelani Elementary  
Kapolei Elementary [MS]  
Kapolei High [MS]  
Leihōkū Elementary  
Mākaha Elementary  
Makakilo Elementary  
Mauka Lani Elementary [MS]  
Nānākuli Elementary  
Nānākuli High and Intermediate [MS/P]  
Pōhākea Elementary  
Wai'anae Elementary  
Waipahu Elementary [MS/P]  
Waipahu High [MS/P]  
Waipahu Intermediate [MS]

### **Central O'ahu**

#### **(Wahiawā-Mililani and Vicinity)**

Hanalani Elementary  
Helemano Elementary [MS]  
'Iliahi Elementary  
Ka'ala Elementary [MS]  
Kīpapa Elementary [MS]  
Leilehua High [MS/P]  
Mililani High [MS/P]  
Mililani Ike Elementary  
Mililani Mauka Elementary

Mililani Waena Elementary [MS]  
Mililani Middle [MS/P]  
Mililani Uka Elementary [MS]  
Wahiawā Elementary [MS]  
Wahiawā Middle [MS]

### **Pearl City-'Aiea and Salt Lake**

'Aiea Elementary [MS]  
'Aiea Intermediate [MS]  
'Aiea High [MS/P]  
Āliamanu Elementary [MS]  
Āliamanu Middle [MS]  
Hālawa District Park  
Highlands Intermediate [MS/P]  
Lehua Elementary [MS]  
Makalapa Elementary [MS]  
Mānana Elementary [MS]  
Moanalua Elementary [MS]  
Moanalua Middle [MS/P]  
Moanalua High [MS/P]  
Momilani Elementary  
Nimitz Elementary  
Palisades Elementary [MS]  
Pearl City District Park  
Pearl City Elementary  
Pearl City High [MS/P]  
Pearl City Highlands Elementary  
[MS]  
Pearl Harbor Elementary  
Pearl Harbor Kai Elementary  
Pearlridge Elementary [MS]  
Radford High [MS/P]  
Red Hill Elementary [MS]  
Salt Lake Elementary [MS]  
Waiau Elementary  
Waimalu Elementary [MS]  
Webbing Elementary  
**Salt Lake - Punchbowl and  
Downtown**  
Central Middle [MS]  
Dole Middle [MS]  
Farrington High

Fern Elementary  
 Ka'ahumanu Elementary  
 Ka'ewai Elementary [MS]  
 Ka'iulani Elementary [MS]  
 Kalākaua Middle [MS/P]  
 Kalihi Elementary  
 Kalihi Kai Elementary [MS]  
 Kalihi Uka Elementary [MS]  
 Kalihi Valley District Park  
 Kalihi Waena Elementary [MS]  
 Kapālama Elementary [MS]  
 Kauluwela Elementary  
 Kawānanakoa Middle [MS]  
 Lanakila District Park  
 Lanakila Elementary [MS]  
 Likelike Elementary  
 Linapuni Elementary [MS]  
 Ma'ema'e Elementary [MS]  
 Makiki District Park  
 Nu'uuanu Elementary  
 Pauoa Elementary  
 Pu'uhale Elementary [MS]  
 Roosevelt High [MS/P]  
 Royal Elementary [MS]  
 Stevenson Middle [MS/P]  
**Punchbowl-Wai'alaie and Vicinity**  
 Ali'iōlani Elementary [MS]  
 'Ānuenue Elementary  
 Hawai'i Convention Center [MS]  
 Hōkūlani Elementary [MS]  
 Jarrett Middle [MS/P]  
 Ka'ahumanu Elementary  
 Kaimukī High [MS/P]  
 Kaimukī Middle [MS/P]  
 Kūhiō Elementary  
 Liholiho Elementary [MS]  
 Lincoln Elementary  
 Lunalilo Elementary  
 Mānoa Elementary [MS]  
 McKinley High [MS]  
 Neal Blaisdell Center [MS]  
 Noelani Elementary [MS]  
 Pālolo Elementary [MS]  
 Wai'alaie Elementary [MS]

Waikīkī Elementary  
 Washington Middle [MS/P]  
 Wilson Elementary [MS]  
**'Āina Haina-Hawai'i Kai and Vicinity**  
 'Āina Haina Elementary [MS]  
 Haha'ione Elementary [MS]  
 Kāhala Elementary [MS]  
 Kaiser High [MS/P]  
 Kalani High [MS/P]  
 Kamilo Iki Elementary [MS]  
 Koko Head Elementary [MS]  
 Niu Valley Middle [MS]  
**Windward Coast (Kahuku-Waimānalo)**  
 'Āhuimanu Elementary [MS]  
 'Aikahi Elementary  
 Benjamin Parker Elementary  
 Brigham Young University of Hawai'i [MS]  
 Castle High [MS/P]  
 Enchanted Lake Elementary [MS]  
 He'eia Elementary [MS]  
 Kahalu'u Elementary [MS]  
 Kahuku Elementary  
 Kahuku High and Intermediate [MS/P]  
 Kailua Elementary [MS]  
 Kailua High [MS/P]  
 Kailua Intermediate [MS]  
 Kainalu Elementary  
 Kalāheo High (MS/P)  
 Kāne'ohe Elementary  
 Kapunahala Elementary  
 Keolu Elementary  
 King Intermediate [MS/P]  
 Lanikai Elementary [MS]  
 Maunawili Elementary [MS]  
 Pope Elementary [MS]  
 Pū'ōhala Elementary  
 Waiāhole Elementary [MS]  
 Waimānalo Elementary and Intermediate [MS/P]

## **MAUI**

*Evacuation and shelter information for Maui County (Maui, Moloka'i and Lāna'i) will be provided by Hawai'i Emergency Management Agency (Maui) at 808-270-7285.*

### **Hāna**

Hāna High

### **Kahului/Wailuku/Waihe'e**

Baldwin High [MS/P]

Ī'ao Elementary [MS]

Kahului Elementary [MS]

Lihikai Elementary [MS]

Maui Community College

Maui High [MS/P]

Maui Waena Intermediate [MS/P]

Waihe'e Elementary [MS]

Wailuku Elementary [MS]

### **Kīhei/Makena**

Kamali'i Elementary [MS]

Kīhei Elementary [MS]

Lokelani Intermediate [MS/P]

### **Lāhainā (West Maui)**

Lāhainā Intermediate [MS]

Lāhaināluna High [MS]

Princess Nahienaena Elementary  
[MS]

### **Upcountry**

Ha'ikū Elementary

Kalama Intermediate [MS/P]

King Kekaulike High [MS/P]

Makawao Elementary [MS]

Pā'ia Elementary [MS]

Pukalani Elementary [MS]

## **MOLOKA'I**

Kaunakakai Elementary

Kilohana Elementary

Kualapu'u Elementary

Moloka'i High [MS]

## **LĀNA'I**

Lāna'i High [MS]

## **KAUA'I**

*Evacuation and shelter information for Kaua'i will be provided by Hawai'i Emergency Management Agency (Kaua'i) at 808-241-1800.*

### **Central**

Kamakahaiei Middle [MS]

Kaua'i Community College

Kaua'i High [MS/P]

Kaua'i Humane Society [pets only]

Kaua'i War Memorial Convention  
Hall

King Kaumuali'i Elementary [MS]

Wilcox Elementary

### **Eastside**

Kapa'a Elementary [MS]

Kapa'a High [MS/P]

Kapa'a Middle [MS/P]

### **North**

Kīlauea Elementary

Kīlauea Neighborhood Center [MS]

### **South**

Ī'ele'ele Elementary [MS/P]

Kalāheo Elementary [MS/P]

Kōloa Elementary [MS]

### **West**

Waimea Canyon Elementary and  
Middle [MS/P]

Waimea High [MS/P]

**HAWAI'I**

*Evacuation and shelter information for Hawai'i Island will be provided by Hawai'i Emergency Management Agency (Hawai'i) at 808-935-0031.*

**North Kohala District**

Kohala High and Elementary [MS]

Kohala Intermediate [MS]

**South Kohala District**

Waikoloa Elementary [MS]

Waimea Elementary [MS]

Waimea Middle

Waimea State Office Building

**North Kona District**

Hōlualoa Elementary

Kahakai Elementary [MS]

Kealakehe Elementary [MS]

Kealakehe High [MS/P]

Kealakehe Intermediate [MS]

**South Kona District**

Ho'okena Elementary

Kona Waena High [MS/P]

**Ka'ū District**

Ka'ū High and Pāhala Elementary  
[MS/P]

**Hāmākua District**

Honoka'a High and Intermediate  
[MS/P]

Kalaniana'ole Elementary [MS/P]

**South Hilo District**

E B de Silva Elementary

Hilo High [MS/P]

Hilo Intermediate [MS]

Kaūmana Elementary [MS]

Waiākea Elementary [MS]

Waiākea High [MS/P]

Waiākea Intermediate [MS]

Waiākea Waena Elementary [MS]

**Puna District**

Kea'au Elementary

Kea'au High [MS/P]

Kea'au Middle [MS/P]

Keonepoko Elementary [MS]

Mountain View Elementary [MS]

Pāhoa Elementary [MS]

Pāhoa High and Intermediate  
[MS/P]



# GLOSSARY

**Amps (amperes)** - a unit used to measure the amount of electric current flowing through a wire.

**Cable Fault** - a damaged conductor in an underground cable.

**Carbon Monoxide** - a colorless, odorless toxic gas that is poisonous if inhaled.

**Circuit** - the completed path traveled by an electric current.

**Circuit Breaker/Fuse** - a safety device that automatically breaks an electric circuit and stops the flow of electric current if it exceeds its rated value.

**Circuit Breaker Panel/Fuse Box** - contains circuit breakers or fuses that limit the amount of current flowing through one or more electric circuits.

**Conductor** - any material or device that allows electric current to move through it easily, such as copper wire.

**Current** - the movement of electric charge (e.g., electrons), usually measured in amperes (A).

**Distribution Lines** - power lines that carry electricity from substations to neighborhoods.

**Electric Meter** - a meter attached to the service line that registers the amount of electricity flowing through it.

**Emergency Alert System (EAS)** - one of the many means used by alerting authorities to send warnings via broadcast, cable, satellite, and wireline communications pathways.

**Flash Flood** - a sudden overflowing of a large amount of water beyond its normal confines, typically due to heavy rain.

**Flash Flood/Flood Watch** - issued when flash flooding or flooding is possible within the designated watch area.

**Flash Flood/Flood Warning** - issued when flash flooding or flooding will occur or is currently occurring within a designated watch area.

**Flashover** - an electric arc across an insulator that results in a visible bright, lightning-like flash, accompanied by a loud, booming sound, and a momentary drop in voltage that causes your lights to blink.

**Generator** - equipment made up of magnets and copper wire that converts mechanical energy into electricity.

**Ground Fault** - the momentary contact between an energized conductor and the ground, that typically results from insulation breakdown.

**Ground Fault Circuit Interrupter (GFCI)** - a safety device on electric outlets or circuit breakers that shuts off electricity to a circuit when the unsafe condition of a ground fault occurs.

**Handhole** - a concrete box, containing electric cables, usually located in sidewalks.

**Hurricane** - a tropical cyclone with winds of 74 miles per hour or more.

**Hurricane Warning** - issued when dangerous hurricane conditions are expected to reach the islands in 36 hours or less.

**Hurricane Watch** - issued when hurricane conditions are expected to reach the island within 48 hours.

**Insulator** - any material or device that does not allow electricity to move easily through it, such as rubber.

**Licensed Electrician** - a State-certified electrician responsible for installing and repairing electrical circuits, components and equipment, according to blue prints or instructions prepared by drafters and engineers.

**Main Circuit Breaker/Switch**- controls the flow of electricity to the entire house.

**National Electrical Code** - a regionally adoptable standard for the safe design, installation, and inspection of electrical wiring and equipment in the United States.

**National Oceanic and Atmospheric Administration (NOAA) Weather Radio All Hazards (NWR)** - broadcast National Weather Service warnings, watches, forecasts and other hazard information 24 hours a day.

**National Weather Service (NWS)** - provides weather, hydrologic, and climate forecasts and warnings for the United States, its territories, adjacent waters and ocean areas, for the protection of life and property and the enhancement of the national economy.

**Overhead Lines** - power lines that run above the ground and are supported by poles.

**Power Fluctuation** - brief reductions or increases in voltage.

**Power Interruption** - a planned or accidental loss of electric power.

**Power Line** - two or more wires that conduct electric power from one location to another.

**Power Sag** - a sudden, brief decrease in voltage.

**Power Spike/Surge/Transient** - a sudden increase in voltage or current which can cause serious damage to sensitive electronic equipment.

**Rolling Blackouts** - a planned power outage done in rotation, due to insufficient electric power available at the generation plant.

**Service Line** - a power line that comes from outside the property (via underground or overhead distribution lines) to one's property.

**Small Stream Flood Advisory** - issued when flooding of small streams, streets, and low-lying areas is occurring.

**Specific Alert Message Encoding (SAME) Codes** - used to program your weather radio to receive alerts for specific counties only.

**Substation** - a high voltage area containing transformers that change the voltage of electrical energy.

**Surge Suppressor** - a device that can protect sensitive equipment from most voltage or current surges.

**Switching** - rerouting electric power from one circuit to another.

**Transformer (Pad Mounted and Overhead)** - an electromagnetic device used to transfer an alternating current or voltage from one electric circuit to another with an increase or decrease in electric voltage. Pad mounted transformers are on the ground. Overhead transformers are on utility poles.

**Transmission Tower** - a tall structure used to support a high-voltage electric power transmission line.

**Tropical Depression** - a low-pressure system or cyclone with sustained winds of less than 29 miles per hour.

**Tropical Storm** - a cyclone where winds may range from 39 to 73 miles per hour.

**Underground Cables** - power lines that are buried beneath the ground.

**Underwriter's Laboratories (UL) Seal/Mark** - indicates that the product meets a number of safety requirements and guidelines set by the Underwriter's Laboratories – an independent product safety certification organization.

**Uninterruptible Power Supply (UPS)** - a rechargeable battery that is placed between your electronic equipment and its normal power source. A UPS provides battery back-up power during a power outage.

**Vault** - a concrete or metal enclosure containing transformers.

**Volt** - a unit of electrical pressure or force.

**Voltage** - electrical potential energy between two points or force measured in volts.

**Watt** - a unit of electrical power; the rate of energy expended.

# INDEX

## A

Airports 51  
 American Red Cross 20, 37, 41, 60, 71-78  
 Amperage (amp) 23, 84  
 Appliances 13, 17, 20-21, 23, 27-28, 31, 37, 46-49, 52-53, 57-58, 60-61  
   Cleaning 20, 27  
   Protection from power disturbances 47-49, 52  
   Use after water damage 60-61

## B

Batteries 39-40, 53  
 Battery back-up 48, 86  
 Battery powered radio 6, 16-17, 19, 21, 39-40, 51-52  
 Blankets 40, 67  
 Bleach 17, 43, 59  
 Board of Water Supply 43, 51, 54, 58-59  
   contact info 71-72

## C

Cable fault 35, 84  
 Cable vault 35  
 Cardiopulmonary resuscitation (CPR) 30, 41  
 Charcoal 39, 53, 62  
 Chlorine 59  
 Circuit 12, 21, 23-27, 30-31, 35, 49, 52-53, 60-61, 84-86  
 Circuit breaker panel 23, 30, 60, 84  
 Circuit breakers 23, 25, 31, 84-85  
 Claims 15, 61, 72-73, 75  
 Conductors 22, 27, 36  
 Current 23-24, 27, 29-30, 84-86

## D

Distribution lines 84-85  
 Dry ice 44-45, 53, 67

## E

EAS (see "Emergency

Alert System")  
 Electric shock 23-24, 27, 29-30, 32  
 Electrical "dig-in" (during excavation work) 32, 35-36  
 Electric outlet 24, 27, 33, 85  
 Electrical safety 22-33, 57, 60  
 Electrician (see "Licensed electrician")  
 Electronic Equipment 37, 47-49, 58, 85-86  
 Elevator 13, 54  
 Emergency Alert System (EAS) 5-6, 37-38, 84  
 Emergency Management Agencies/Department of Emergency Management 5-7, 9, 15, 37, 44, 53-55, 58  
   contact info 71-83  
 Emergency plan 12, 37, 78  
 Emergency shelters (see "Statewide Public Emergency Shelters")  
 Evacuation kit 12, 16, 18, 37-38, 40

**F**  
 Family emergency plan (see "Emergency plan")  
 Federal Emergency Management Agency (FEMA) 15, 60, 78  
 Fire 13, 23, 27, 29, 32, 35, 38, 53, 55  
   Electrical fire 22, 24, 27, 31-32  
   Fire extinguisher 31  
   Fire, Police, Ambulance 71-77  
 First aid kit 12, 37, 39-41  
 Flashlight 16-17, 19, 39-40, 53

Flashover 35, 84  
 Flood 7, 9, 12, 14-21, 33, 35, 38, 44, 57, 60-61, 78, 84-85  
 Flood Insurance 15, 20, 77-78  
 Food 20, 39-40, 43-44, 53, 55, 62-70, 79  
   Emergency food supply 65-66, 77  
   Food safety 62-70, 77  
 Fuse 23, 25, 31, 84  
 Fuse box 23, 30-31, 60-61, 84

## G

Gas 13, 17-19, 21, 28, 32, 37-39, 45-46, 60, 67, 84  
   Hawai'i Gas  
     contact info 71-77  
     Leaking 13, 19, 60  
     Valves 17, 21, 38  
 Generator 6, 35, 39, 42, 46, 56, 84  
 Ground Fault Circuit Interrupter (GFCI or GFI) 24-28, 85

## H

Hawai'i Electric Light Company 1, 36  
   contact info 75  
 Hawai'i Gas  
   contact info 71-77  
 Hawaiian Electric Company 1, 36, 51, 61  
   contact info 72  
 Hawaiian Telcom  
   contact info 72-73, 75-76  
 Health needs 40, 42, 79  
 Home survival kit 12-13, 16, 37, 39  
 Hospitals 20, 30, 42, 51-52  
 Hurricane 7-13, 34, 38, 49, 53, 57, 61, 85  
   Statewide Public Emergency Shelters 12-13, 37, 42, 55, 79-83  
   Warning 6-7, 9, 13, 85  
   Watch 6-7, 9, 12, 15-16, 84-85

## I

Ice 39, 42, 44-45, 53, 67  
 Insulators 22, 28, 35-36, 84-85

**K**

Kaua'i Island Utility  
Cooperative  
contact info 77

**L**

Licensed electrician 24,  
26, 33, 46, 57, 60, 85  
Lightning 26, 28, 34, 47,  
84

**M**

Main breaker switch 23,  
27, 31  
Maui Electric Company  
1, 36  
contact info 73-74

Medical kit (see "First aid  
kit")

Medical needs (see  
"Health needs")

Medications 20, 39-42

**N**

National Oceanic  
and Atmospheric  
Administration (NOAA) 6,  
14-15, 78, 85  
National Weather Service  
(NWS) 6, 14, 78, 85  
NOAA Weather Radio  
(NWR) 6, 15, 21, 85

**O**

Outlet (see "Electric  
outlet")  
Overhead power lines 28-  
29, 34, 36, 51

**P**

Pets 13, 38-40, 43, 45,  
55-56, 66  
Pet-friendly shelters  
79-83

Power (voltage) sag 47,  
85

Power (voltage) surge  
47-49, 85

Power fluctuation 47-49,  
58, 85

Power interruption 47-49,  
51, 57-58, 85

Power lines 19, 22, 28-36,  
51-52, 57, 60, 84-86

Power outage 5-6, 17,  
22-23, 34-37, 39, 42-44,

49-62, 66, 85  
Causes 34-35  
Reporting 50, 72-77  
Power restoration 6, 50-  
53, 57-58

**R**

Radio 6, 9, 12, 15-17,  
19-21, 39-40, 48, 51-52,  
54-55, 58, 85-86

Refrigerator 20, 42, 45,  
47, 52-53, 57, 61, 66,  
68-69

Rolling blackout 35, 49,  
52, 85

**S**

Sewer system 54

Shelters 5, 12-13, 20, 37-  
38, 40, 42, 55, 79-83

Shock (see "Electric  
shock")

Storm surge (high waves)  
7, 9, 34

Storm Tracking Map 10-11

Storms 6-13, 17, 19, 28,  
33-34, 39, 49, 52, 55, 57-  
61, 86

Lightning storms 28, 34,  
47

Thunder storms 26, 34  
Tropical storms 7, 12-13,  
34, 86

Streams 7, 14-18, 44, 54,  
85

Streetlights out 71-77

Substations 28, 36, 84, 86

Surge suppressors 48-49,  
86

Survival kit 12-13, 16, 37,  
39

**T**

Telephone pole (see  
"Utility pole")

Telephones 53-54  
Hawaiian Telcom contact  
info 71-77

Toilets 54

Transformer 28, 33-36,  
51, 86

Transient voltage surge  
suppressor (TVSS) 48-49

Tree trimming 28, 36

Tropical storms 7-8, 12,  
86

Trouble Line (for utilities)  
contact info 71-77

Tsunami 21-22, 34, 38,  
53, 79

TVSS (see "transient  
voltage surge  
suppressor")

**U**

Underground cables  
(underground power lines)  
19, 28, 32, 35-36, 50-51,  
84-86

Uninterruptible Power  
Supply (UPS) 49, 86

Utility pole 28-29, 35-36,  
86

**V**

Vegetation management  
36

Voltage 29-30, 47-49, 84

Voltage (power) sag 47,  
85

Voltage (power) surge 47-  
49, 58, 85

**W**

Water 9, 14-15, 17, 19-20,  
22, 24-25, 27-28, 31, 33,  
37-41, 43-44, 54-62, 79,  
84-85

Boiling 59  
Disinfecting 20, 43, 59,  
61

Distilling 44, 59  
Purifying 43, 58

Sanitizing 17, 20, 43-44,  
54, 58-59

Storage 39-40, 43-44

Water heater 13, 16, 57

Watt 27, 46, 86

Windows 13, 17, 20, 28,  
38-39, 45-46, 55





**Hawaiian Electric**  
**Maui Electric**  
**Hawai'i Electric Light**

**Hawaiian Electric Company**

P.O. Box 2750 • Honolulu, Hawaii 96840-0001

**Maui Electric Company**

P.O. Box 398 • Kahului, Hawaii 96733-6898

**Hawai'i Electric Light Company**

P.O. Box 1027 • Hilo, Hawaii 96721-0001



Printed on recycled paper

40M 6/15

Follow us on:

